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DIGITAL AVIONICS INFORMATION SYSTEM (DAIS). VOLUME II. IMPACT 0--ETC(U)

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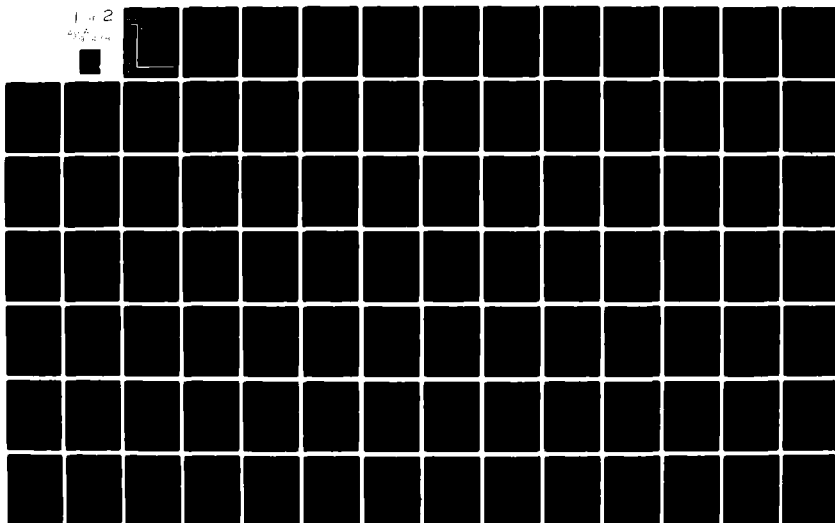
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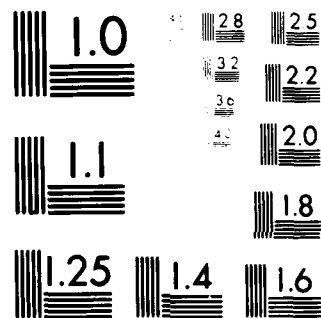
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**DIGITAL AVIONICS INFORMATION SYSTEM (DAIS):  
IMPACT OF DAIS CONCEPT ON LIFE  
CYCLE COST—SUPPLEMENT**

By

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March 1981

Final Report

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This final report was submitted by Dynamics Research Corporation, 60 Concord Street, Wilmington, Massachusetts 01887, under Contract F33615-75-C-5218, Project 2051, with the Logistics and Technical Training Division, Air Force Human Resources Laboratory (AFSC), Wright-Patterson Air Force Base, Ohio 45433. Mr. H. Anthony Baran was the Contract Manager for the Laboratory.

This report has been reviewed by the Office of Public Affairs (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

ROSS L. MORGAN, Technical Director  
Logistics and Technical Training Division

RONALD W. TERRY, Colonel, USAF  
Commander

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

19 REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
18. REPORT NUMBER AFHRL TR-81-4(II) ✓	2. GOVT ACCESSION NO. AD-A097438	3. RECIPIENT'S CATALOG NUMBER (9)	
4. TITLE (and Subtitle) DIGITAL AVIONICS INFORMATION SYSTEM (DAIS). IMPACT OF DAIS CONCEPT ON LIFE CYCLE COST SUPPLEMENT.		5. TYPE OF REPORT & PERIOD COVERED Final rept.	
6. AUTHOR(s) John C. Goculowski John M. Glasier Marjorie A. Bristol		7. PERFORMING ORG. REPORT NUMBER	
8. AUTHORING ORGANIZATION NAME AND ADDRESS Dynamics Research Corporation 60 Concord Street Wilmington, Massachusetts 01887		9. CONTRACT OR GRANT NUMBER(s) F33615-75-C-5218 ✓	
10. CONTROLLING OFFICE NAME AND ADDRESS HQ Air Force Human Resources Laboratory (AFSC) Brooks Air Force Base, Texas 78235		11. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 63243F 20510001	
12. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Logistics and Technical Training Division Air Force Human Resources Laboratory Wright-Patterson Air Force Base, Ohio 45433		13. REPORT DATE March 1981	
14. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		15. NUMBER OF PAGES 148	
16. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		17. SECURITY CLASS. (of this report) Unclassified	
18. SUPPLEMENTARY NOTES The research reported herein was sponsored jointly by Air Force Human Resources Laboratory, Air Force Avionics Laboratory, and Air Force Logistics Command. It was performed and funded as part of the Digital Avionics Information System Advanced Development program.		19a. DECLASSIFICATION DOWNGRADING SCHEDULE	
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Digital Avionics Information System life cycle cost life cycle cost equations Life Cycle Cost Impact Model maintenance cost analysis conventional vs. DAIS concepts operation and support cost Reliability and Maintainability Cost Reliability and Maintainability Cost Model			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Digital Avionics Information System (DAIS) approach to avionics design is a total system concept rather than a functional subsystem or hardware-oriented system. DAIS uses the common processing, information transfer, control and display, and support software elements to service all avionics functional areas on an integrated basis. Thus, the DAIS architecture and core elements are not dedicated to any one specific avionic function, but are used to perform the tasks of many avionic functions with the avionic sensors and subsystems. This systems approach provides flexibility to accommodate a wide variety of avionic configurations and missions, as well as redundancy to improve availability. Standardization and replication of the core elements can reduce the			

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Item 20 Continued:

life cycle costs when major modifications/retrofits of an avionic configuration is considered, or when applied across the fleet by reducing unnecessary development proliferation and reducing maintenance costs.

A limited assessment of the potential effects of the DAIS concept on avionics system life cycle cost are assessed in this report by a cost comparison of a hypothetical application of a conceptual mid-1980's DAIS suite versus a conventional avionics suite used in a close-air-support (CAS) aircraft both with one major modification/retrofit.

The first volume of this two volume technical report describes the cost comparison and its results. This volume supplements the first by providing additional details of the comparison, appendices, model output reports of the Life Cycle Cost Impact Modeling System (LCCIM), and data used in the comparison.

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**Abstract**

Contract funds were provided by the Air Force Avionics Laboratory. The UAS Program Manager is Mr. Terrance A. Brim. Mr. H. Anthony Baran is the Air Force Human Resources Laboratory Project Scientist. The Air Force Logistics Command Project Officer is Captain Ronald Mann. The contractor Program Manager is Mr. John Goculowski.

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## 1.

MEMPHIS NO. 1 -- SYSTEM COST

PIUP = 15 YEARS BASE YEAR - 1976

NON-OAIS COST DATA BANK (HISTORICAL)

	COST	% LCC
NC - RECURRING		
CS - SUPPORT.....	121,462,221	47.524%
CU - OPERATION.....	0	0.0%
NR - NON-RECURRING		
CR - R & D.....	5,340,000	2.089%
CS - SYSTEM INVESTMENT.....	47,118,725	26.496%
CU - SUPPORT INVESTMENT.....	61,060,115	23.891%
CR - DISPOSAL.....	0	0.0%
LCC - TOTALS.....	255,581,062	100.000%

REPORT NO. 2 -- EXPANDED NON-RECURRING COSTS (NNC)

NON-OAS COST DATA BANK (HISTORICAL)

	COST	% LCC
	----	----
NC - RECURRING.....	121,462,221	47.524%
PIUP = 15 YEARS		
CCP - DISPOSAL.....	0	0.0%
NNC - NON-RECURRING		
CRD - R & D.....	5,340,000	2.089%
CSI - SYSTEM INVESTMENT		
CCP - PROCUREMENT.....	67,718,725	26.496%
CCP - PROJECT MANAGEMENT.....	0	0.0%
CUI - SUPPORT INVESTMENT		
CPTI - MAINTENANCE TRAINING.....	0	0.0%
CSPI - SPARES.....	16,742,071	6.551%
CURI - SL, DEPOT.....	22,176,000	8.677%
CSEI - SE, FIELD.....	15,051,232	5.889%
CSWI - SOFTWARE ACQUISITION.....	5,316,597	2.080%
CJGI - MAINTENANCE MANUALS.....	1,769,194	0.692%
CIMI - INVENTORY MANAGEMENT.....	5,020	0.002%
CFAI - FACILITIES.....	0	0.0%
LCC - TOTALS.....	255,581,062	100.000%

REPORT NO. 3 -- EXPANDED RECURRING COSTS (R)

NON-DATA COST DATA BANK (HISTORICAL)

	COST	% LCC
HMC - NON-RECURRING.....	134,118,840	52.476%
COP - DISPOSAL.....	0	0.0%
RC - RECURRING (FOR PIUP = 15 YEARS)		
CO - OPERATION		
CFL - FUEL.....	0	0.0%
COP - PERSONNEL		
CAC - AIRCREW.....	0	0.0%
COO - OTHER OPERATIONS.....	0	0.0%
CS - SUPPORT		
COM - ON-EQUIPMENT MAINTENANCE.....	26,681,736	10.440%
CSM - INTERMEDIATE MAINTENANCE.....	22,855,908	8.943%
CPT - TRAINING.....	13,152,502	5.166%
CSP - SPARES.....	11,824,026	4.628%
CDR - DEPOT MAINTENANCE.....	33,767,100	13.212%
CSE - SUPPORT EQUIPMENT.....	6,752,616	2.642%
CSW - SOFTWARE.....	4,209,000	1.647%
CJG - MAINTENANCE MANUALS.....	1,990,343	0.779%
CIM - INVENTORY MANAGEMENT.....	228,986	0.090%
LCC - TOTALS.....	255,581,062	100.000%

REPORT NO. 4 -- COSTS BY SUBSYSTEM CONTRIBUTIONS

RECURRING COST ELEMENTS (PER YEAR)

OUTPUT FILE -- NON-BASIS COST DATA BANK (HISTORICAL)

ID	COM	CSM	CMY	CSP	CON	CJG	CIM	TOTAL
	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY
AA110	153,284.0	83,714.2	59,888.9	69,678.8	57,127.8	5,712.8	462.6	429,729.1
AA120	193,598.0	136,669.6	83,729.7	144,254.6	72,218.3	3,102.2	154.2	633,730.6
AA210	22,021.0	2,306.3	6,279.5	2,501.6	13,523.1	2,487.3	308.4	49,427.3
AA220	2,327.2	2,448.2	625.9	626.1	0.	5,947.0	154.2	12,128.5
AC110	47,562.9	66,546.2	33,307.3	28,539.0	56,061.4	7,281.8	925.2	240,223.8
AC210	35,315.0	41,576.2	22,615.7	4,532.0	9,175.7	3,863.7	462.6	117,538.8
AC310	40,159.0	22,467.2	19,032.8	2,981.4	60,333.0	3,106.6	616.8	148,696.7
AC120	56,822.2	83,516.8	39,235.1	10,686.6	14,358.6	4,056.3	771.0	209,444.7
AC330	10,068.1	3,326.4	3,985.6	359.5	898.0	4,056.3	771.0	23,463.0
AC410	16,822.7	8,129.9	7,508.2	180.4	1,259.4	3,437.0	462.6	37,800.3
AC510	25,954.9	20,538.0	12,966.8	1,593.0	7,722.7	4,813.4	616.8	76,255.5
AC610	19,469.4	5,687.6	6,601.0	7,299.6	46,284.2	1,587.9	462.6	87,392.4
AI110	60,533.0	7,562.3	7,329.9	3,782.2	48,902.6	3,960.0	616.8	132,686.7
AI120	5,775.7	1,146.7	728.8	575.2	12,987.0	968.6	154.2	22,334.2
AI210	75,218.5	72,371.2	36,339.7	123,724.9	750,177.8	1,679.8	154.2	1,057,666.0
AI310	29,522.9	14,041.5	11,856.5	4,471.8	6,221.6	6,570.6	925.2	73,610.2
AI410	7,221.1	3,956.7	2,486.3	6,093.4	12,831.5	826.4	154.2	33,569.5
AI210	5,302.3	1,759.5	1,926.7	108.4	708.1	3,533.3	616.8	13,955.1
AI310	46,209.7	11,953.2	6,596.6	4,956.6	72,331.5	4,294.8	925.2	147,231.6
AI410	52,903.2	77,469.4	34,748.8	9,082.3	14,778.0	3,863.7	462.6	193,308.0
AI110	18,800.3	10,133.4	7,129.0	1,698.7	1,185.1	3,448.8	616.8	42,812.0
AI210	80,998.0	51,426.0	37,759.8	8,458.8	51,041.7	3,629.6	771.0	233,982.8
AI220	13,987.2	9,780.2	6,406.9	7,236.7	22,038.1	1,633.9	308.4	61,411.4
	0.175	0.121	0.079	0.089	0.272	0.020	0.004	0.778





NON-RECURRING COST ELEMENTS

ID	CSPI	LJGI	CPP	TOTAL
---	---	---	---	---
AA110	1,357,242	76,170	7,452,000	8,885,615
AA120	3,099,088	41,362	4,968,000	8,108,502
AA210	93,235	33,163	885,960	1,012,461
AA220	51,449	79,292	3,634,754	3,765,547
AC110	436,364	97,090	4,372,088	4,905,827
AC210	76,929	51,516	868,406	997,003
AC310	69,816	41,420	388,497	499,937
AC320	108,257	54,083	594,669	757,284
AC330	27,470	54,083	413,586	495,893
AC410	4,269	45,826	92,239	142,486
AC510	55,180	64,178	910,009	1,049,572
AC610	250,608	21,171	725,410	997,342
AI110	133,768	52,799	607,586	794,357
AI120	21,242	12,914	171,147	205,356
AI210	89,864	87,608	1,438,484	1,616,200
AI220	137,679	11,018	707,608	856,357
AM130	14,844	47,110	490,176	552,333
AM140	155,244	57,263	1,109,520	1,322,332
AM150	109,647	51,516	542,257	703,572
AM210	18,316	43,317	311,576	373,413
AM220	154,094	48,594	736,009	938,750
AM310	115,201	21,784	548,798	685,886
AM320	96,718	268,505	8,758,335	9,994,580
AM330	0,721	0,200	6,530	7,452

TO	CSM1	CJGI	CPH	CIMI	TOTAL
---	---	---	---	---	---
AN320	142,791	62,895	1,185,199	152	1,391,037
AN330	2,143,963	44,542	4,775,076	101	6,963,683
AN340	5,019,469	82,473	8,927,578	101	12,029,623
AN350	1,428,133	105,231	4,467,805	101	6,001,271
AN360	283,435	90,059	3,055,154	101	3,428,750
	0.211	0.067	2.278	0.000	2.557

16,701,178 1,769,194 6,778,725 5,020 86,194,120  
 12,453 1,319 50,492 0.004 64,267

OTHER NON-RECURRING COSTS -- CPTI.....

COMI.....	22,176,000
CSEI.....	15,051,232
CSMI.....	5,316,597
CPAI.....	3,964
CMO.....	5,340,000
CPM.....	3,982
SPNIS.....	40,892
MMRC.....	0.030

TOTAL MRC..... 134,118,842  
 100,000

REPORT NO. 5 -- COSTS BY LRU CONTRIBUTIONS

RECURRING COST ELEMENTS (PER YEAR)

OUTPUT FILE - NON-BASIS COST DATA BANK (HISTORICAL)

ID	COM	CSM	CPT	CSP	CON	CIM	TOTAL
	Σ MCV	Σ MCV	Σ MCV	Σ MCV	Σ MCV	Σ MCV	Σ MCV
AR111	19,501.4	9,947.4	7,471.0	13,972.8	8,904.2	154.2	59,951.1
AR112	57,620.0	0.241	0.123	0.092	0.173	0.002	0.740
AR113	76,262.5	0.712	0.336	0.271	0.095	0.120	1,535
AR121	193,598.0	0.942	0.575	0.376	0.591	0.002	2,976.2
AR21A	7,340.3	1,688	83,729.7	144,258.6	72,218.3	154.2	630,628.4
AR21B	14,680.7	0.091	0.014	67.7	1,214.1	0.002	7,788
AR22A	2,327.2	0.181	0.014	2,433.9	12,309.0	0.002	34,802.7
AR22B	15,149.7	0.029	0.030	626.1	0.152	0.002	6,181.5
AR311	15,703.3	0.187	0.084	4,875.6	29,916.2	0.002	83,624.5
AR312	15,703.3	0.194	0.303	7,237.9	16,133.0	0.002	75,238.0
AR313	5,251.2	0.065	0.084	5,064.4	7,684.8	0.002	28,499.5
AR314	5,469.3	0.068	0.099	8,528.4	1,021.6	0.002	27,134.1
AR31A	3,403.7	0.042	0.033	2,174.2	1,285.9	0.002	11,471.9
AR31B	2,583.7	0.032	0.027	662.6	0.016	0.002	6,934.1
AR31C	33,712.0	0.416	0.266	3,278.6	9,175.7	0.002	107,497.7
AR31D	616.1	0.008	0.003	1,033.2	0.113	0.002	2,460.3
AR31E	987.0	0.012	0.009	220.1	0.046	0.002	3,717.0
AR31F	20,915.8	0.259	0.113	1,496.2	52,346.2	0.002	93,190.6
AR31G	2,318.0	0.029	0.004	307.8	2,581.1	0.002	6,949.1
AR31H	15,666.9	0.193	0.107	976.2	3,867.9	0.002	41,752.7
AR31I	1,240.2	0.015	0.002	201.3	1,537.8	0.002	3,697.8
AR31J	45,540.6	0.562	0.429	7,983.5	7,201.8	0.002	171,462.9
AR31K	453.6	0.006	0.002	57.4	134.0	0.002	1,077.5
AR31L	552.2	0.007	0.002	21.5	146.4	0.002	1,480.6
AR31M				0.000	0.002	0.002	0.018

LD	CUH	CSM	CPI	CSP	CDP	CIM	TOTAL
	Σ MCV	Σ MCV	Σ MCV	Σ MCV	Σ MCV	Σ MCV	Σ MCV
AC32A	5,354.8	5,175.9	2,903.4	1,984.1	174.4	154.2	15,746.9
AC32B	4,920.9	1,892.3	1,311.0	640.2	6,702.0	0.002	15,620.6
AC331	1,814.4	544.9	699.2	45.5	0.	0.002	3,258.1
AC332	1,541.7	822.2	731.5	104.9	460.2	0.002	3,874.7
AC333	2,810.7	1,087.5	1,161.7	85.1	0.	0.002	5,297.0
AC334	2,087.0	420.5	739.8	25.4	195.6	0.002	3,622.6
AC33A	1,814.4	389.6	653.4	100.4	242.2	0.002	3,554.4
AC411	9,577.8	4,684.1	4,300.6	122.1	534.9	0.002	19,373.7
AC412	5,580.4	2,760.8	2,657.7	64.5	0.	0.002	10,797.5
AC413	1,864.5	685.1	749.9	14.0	724.5	0.002	4,192.1
AC511	17,835.9	14,820.9	9,120.3	1,222.5	6,433.0	0.002	49,586.8
AC51A	4,676.1	3,479.4	2,249.7	141.2	0.	0.002	10,720.6
AC51B	369.0	180.2	150.9	208.4	1,339.6	0.002	2,402.4
AC51C	3,073.9	2,037.5	1,425.8	20.8	0.	0.002	6,732.3
AC611	16,831.6	3,674.7	5,236.9	7,021.3	45,766.8	0.002	78,685.5
AC612	645.7	206.0	236.0	20.9	172.0	0.002	1,434.7
AC61A	1,992.0	1,807.0	1,128.2	237.5	343.4	0.002	5,684.2
AI111	13,163.4	2,103.6	1,597.7	931.0	5,044.4	0.002	22,996.2
AI112	1,141.2	118.5	135.8	27.9	1,396.3	0.002	2,974.0
AI113	20,745.7	2,257.5	2,501.5	2,598.0	31,794.8	0.002	60,051.7
AI114	25,482.6	3,082.7	3,094.9	225.3	10,667.2	0.002	42,706.9
AI121	5,771.7	1,146.7	728.8	555.2	12,987.0	0.002	21,365.6
AI121	75,218.3	72,371.2	36,339.7	123,724.9	750,177.8	0.002	1,555,986.2
AI13A	6,065.2	2,737.7	2,493.4	1,011.4	1,768.0	0.002	13,729.9
AI13B	8,525.4	2,343.6	2,537.5	621.6	0.	0.002	14,182.3
AI13C	3,399.9	1,536.4	1,398.9	401.9	4,953.7	0.002	11,845.0
	0.042	0.019	0.017	0.005	0.061	0.002	0.146



LD	CUM	CSM	CPI	CSP	CBP	CIM	TOTAL
	Z RCV	Z RCV	Z RCV	Z RCV	Z RCV	Z RCV	Z RCV
AM221	13,208.0	9,399.5	6,097.7	7,168.1	19,081.7	154.2	55,107.2
AM222	781.2	380.7	509.1	68.6	2,976.4	154.2	4,670.3
AM311	50,995.6	42,389.2	24,179.0	20,873.6	41,899.4	154.2	180,491.0
AM312	28,508.4	26,639.1	14,374.4	3,794.4	4,764.1	154.2	78,234.8
AM313	51,607.2	40,691.0	23,793.2	5,123.5	13,062.9	154.2	134,432.0
AM314	6,162.8	912.1	1,660.0	1,431.6	8,005.0	154.2	18,365.6
AM315	2,552.2	972.4	834.6	44.2	0.	154.2	4,359.6
AM316	8,467.9	5,912.8	3,699.3	2,038.2	318.4	154.2	20,590.8
AM317	85,926.4	62,304.9	37,790.4	11,117.6	25,733.0	154.2	221,026.6
AM318	64,967.7	50,521.3	29,851.7	7,630.4	22,016.7	154.2	225,164.0
AM319	846.8	175.8	233.6	0.	0.	154.2	1,410.5
AM320	5,763.5	2,568.6	1,624.1	321.1	0.	154.2	8,433.6
AM321	5,692.3	3,407.2	2,326.7	1,592.5	0.	154.2	13,172.9
AM322	66,799.2	59,919.1	16,581.1	9,273.8	26,250.0	154.2	178,977.4
AM323	633.3	135.9	86.7	15.0	713.1	154.2	1,738.2
AM324	303.7	64.0	42.5	21.8	167.3	154.2	755.5
AM331	155,569.0	139,139.9	109,061.2	88,864.1	218,396.3	154.2	691,184.7
AM332	6,499.2	1,772.9	3,124.6	1,203.5	410.6	154.2	13,165.0
AM333	55,913.9	117,009.2	51,597.5	116,398.0	192,386.8	154.2	571,459.6
AM334	10,671.8	9,478.2	4,802.9	5,041.0	2,518.0	154.2	32,806.1
AM335	67,703.5	123,072.4	51,228.6	39,231.0	260,433.0	154.2	541,844.7
AM336	39,189.3	75,314.4	29,603.5	21,528.9	38,548.1	154.2	204,338.5
AM337	21,833.2	16,904.2	14,517.7	10,299.5	11,631.9	154.2	72,138.6
AM338	9,299.1	7,699.8	6,970.6	1,137.1	1,670.0	154.2	27,150.8
AM339	0.115	0.098	0.086	0.014	0.021	154.2	0.335
	1,778,782.4	1,523,727.3	876,833.5	786,268.4	2,251,140.0	15,265.8	7,234,017.4
	21 067	18 P17	10. N28	9.755	27.800	0.189	89.337

OTHER INCURRING COSTS -- CSE.....	450,174.4
CSM.....	5,559
	280,600.0
	3,465
CJG.....	132,084.6
CL.....	1,634
CL.....	0.
CAC.....	0.
COO.....	0.
TEST STATION/TEST DRAWER (CSM).....	0.
TEST STATION/TEST DRAWER (CPI).....	0.
CON OVERHAUL.....	0.
	0.
	-----
TOTAL RCT.....	8,097,481.4
	100,000

NON-RECURRING COST ELEMENTS

ID	(CSP)	Σ MRC	CPV	(IMI)	Σ MRC	TOTAL
--	----	-----	----	----	-----	-----
AA111	342,960	0.256	4,140,000	3.087	50	6,483,011
AA112	108,396	0.081	828,000	0.617	50	936,444
AA113	905,938	0.675	2,484,000	1.852	50	3,389,989
AA121	3,099,088	2.511	4,968,000	3.704	50	8,067,139
AA21A	2,088	0.002	57,960	0.043	50	60,099
AA21B	91,167	0.068	828,000	0.617	50	919,198
AA22A	51,449	0.038	3,634,754	2.710	50	3,686,254
AC111	69,926	0.052	873,408	0.651	50	943,186
AC112	100,246	0.075	1,303,106	0.972	50	1,403,403
AC113	91,974	0.069	415,324	0.310	50	507,349
AC114	134,889	0.086	454,986	0.339	50	589,926
AC11A	48,793	0.036	1,101,157	0.821	50	1,150,001
AC11B	10,513	0.008	224,305	0.167	50	234,869
AC211	50,246	0.037	399,364	0.298	50	449,642
AC212	21,809	0.016	414,000	0.309	50	435,940
AC21A	4,792	0.004	55,062	0.041	50	59,903
AC311	41,956	0.031	178,268	0.133	50	220,278
AC312	7,020	0.005	74,520	0.056	50	81,591
AC31A	9,800	0.007	44,629	0.033	50	54,480
AC31B	11,036	0.008	91,080	0.068	50	102,167
AC321	75,505	0.056	379,306	0.283	50	454,862
AC322	2,203	0.002	57,960	0.043	50	60,214
AC323	1,079	0.001	13,910	0.010	50	15,040
AC32A	15,876	0.012	89,341	0.067	50	105,262
						0.078



ID	CPI	CPP	IMI	TOTAL
	3 NRC	4 NRC	5 NRC	6 NRC
AC320	13,598	54,131	50	67,800
AC331	0,010	0,040	0,000	0,051
AC333	2,603	54,599	50	57,053
AC332	0,002	0,041	0,000	0,043
AC335	7,264	79,488	50	86,803
AC336	0,005	0,059	0,000	0,065
AC337	11,856	222,814	50	234,721
AC338	0,009	0,166	0,000	0,175
AC339	1,346	11,012	50	12,409
AC340	0,001	0,008	0,000	0,009
AC341	4,900	45,571	50	50,822
AC342	0,004	0,034	0,000	0,038
AC343	2,779	50,176	50	53,007
AC344	0,002	0,037	0,000	0,040
AC345	823	25,502	50	26,376
AC346	0,001	0,019	0,000	0,020
AC347	665	16,560	50	17,276
AC348	0,000	0,012	0,000	0,013
AC349	21,750	219,751	50	241,532
AC350	0,016	0,164	0,000	0,180
AC351	1,809	10,267	50	12,127
AC352	0,001	0,008	0,000	0,009
AC353	30,947	662,400	50	693,397
AC354	0,023	0,494	0,000	0,517
AC355	693	37,591	50	38,335
AC356	0,001	0,028	0,000	0,029
AC357	242,089	662,400	50	904,539
AC358	0,181	0,494	0,000	0,674
AC359	1,060	17,139	50	18,250
AC360	0,001	0,013	0,000	0,014
AC361	7,458	45,871	50	53,380
AC362	0,006	0,034	0,000	0,040
AC363	30,330	174,708	50	205,089
AC364	0,023	0,130	0,000	0,153
AC365	4,940	66,405	50	71,396
AC366	0,004	0,050	0,000	0,053
AC367	90,727	340,225	50	431,003
AC368	0,068	0,254	0,000	0,321
AC369	7,770	26,247	50	34,068
AC370	0,006	0,020	0,000	0,025
AC371	21,242	171,147	50	192,441
AC372	0,016	0,128	0,000	0,143
AC373	2,135,857	4,560,789	50	6,696,698
AC374	1,593	3,401	0,000	4,993
AC375	25,102	670,431	50	695,584
AC376	0,019	0,500	0,000	0,519
AC377	12,019	372,600	50	384,670
AC378	0,009	0,278	0,000	0,287
AC379	12,689	213,672	50	226,612
AC380	0,009	0,159	0,000	0,169
AC381	20,848	100,456	50	121,335
AC382	0,016	0,075	0,000	0,090

ID	CSPI	Z MRC	CPP	Z MRC	CPI	Z MRC	TOTAL	Z MRC
AM13E	293	0.000	6,541	0.005	50	0.000	6,885	0.005
AM13F	18,910	0.014	74,402	0.056	50	0.000	93,563	0.070
AM14A	137,679	0.103	707,608	0.528	50	0.000	845,339	0.630
AM211	5,786	0.004	373,014	0.278	50	0.000	378,851	0.282
AM212	301	0.000	9,770	0.007	50	0.000	10,122	0.008
AM213	491	0.000	24,840	0.019	50	0.000	25,382	0.019
AM214	8,264	0.006	82,551	0.062	50	0.000	90,867	0.068
AM111	1,741	0.001	25,088	0.019	50	0.000	26,880	0.020
AM11A	49,299	0.037	270,838	0.202	50	0.000	320,189	0.239
AM11B	53,056	0.040	267,361	0.199	50	0.000	320,468	0.239
AM11C	2,591	0.002	66,157	0.049	50	0.000	68,799	0.051
AM11D	37,352	0.028	421,203	0.314	50	0.000	458,606	0.342
AM11E	11,203	0.008	58,870	0.044	50	0.000	70,124	0.052
AM121	104,568	0.078	472,374	0.352	50	0.000	576,993	0.430
AM122	3,701	0.003	57,960	0.043	50	0.000	61,712	0.046
AM12A	1,377	0.001	11,923	0.009	50	0.000	13,331	0.010
AM131	8,962	0.007	142,995	0.107	50	0.000	152,008	0.113
AM132	2,301	0.002	74,520	0.056	50	0.000	76,872	0.057
AM13A	900	0.001	15,318	0.011	50	0.000	16,269	0.012
AM13B	6,151	0.005	78,742	0.059	50	0.000	84,945	0.063
AM211	72,393	0.034	182,656	0.136	50	0.000	255,101	0.190
AM212	2,635	0.002	65,494	0.049	50	0.000	68,180	0.051
AM213	42,758	0.032	356,454	0.266	50	0.000	399,262	0.298
AM21A	35,783	0.027	103,003	0.077	50	0.000	138,837	0.104
AM21B	523	0.000	28,400	0.021	50	0.000	28,974	0.022
AM221	111,991	0.084	472,374	0.352	50	0.000	584,416	0.436

ID	USP1	Σ MRC	CP4	Σ MRC	CEMI	Σ MRC	TOTAL	Σ MRC
AN222	3,210	0.002	76,424	0.057	50	74,085	0.059	
AN311	383,517	0.246	2,242,038	1.672	50	2,626,206	1.458	
AN312	65,603	0.049	1,202,070	0.897	50	1,268,326	0.946	
AN313	97,533	0.073	1,410,580	1.052	50	1,508,164	1.124	
AN314	45,290	0.034	506,404	0.378	50	551,746	0.411	
AN315	2,007	0.001	50,159	0.022	50	52,196	0.024	
AN31A	37,959	0.028	885,144	0.658	50	921,154	0.687	
AN31B	121,215	0.090	827,668	0.617	50	948,935	0.708	
AN31C	173,473	0.129	1,215,172	0.906	50	1,388,697	1.035	
AN31D	310	0.000	12,834	0.010	50	13,194	0.010	
AN31E	19,334	0.014	213,341	0.159	50	232,926	0.174	
AN31F	20,935	0.016	213,341	0.159	50	234,527	0.175	
AN321	136,830	0.102	1,042,617	0.777	50	1,179,499	0.879	
AN322	2,650	0.002	35,604	0.027	50	38,305	0.029	
AN32A	3,309	0.002	106,977	0.080	50	110,338	0.082	
AN331	2,119,373	1.580	4,457,703	3.324	50	6,577,127	4.904	
AN33A	24,590	0.018	317,572	0.237	50	342,013	0.255	
AN34A	2,955,185	2.203	8,018,434	5.979	50	10,973,621	8.182	
AN34B	64,284	0.048	909,144	0.678	50	973,478	0.726	
AN35A	887,219	0.662	2,544,526	1.897	50	3,431,796	2.559	
AN35B	540,914	0.403	1,923,278	1.434	50	2,466,243	1.837	
AN36A	251,059	0.187	2,185,837	1.650	50	2,436,947	1.817	
AN36B	32,575	0.024	869,317	0.648	50	901,743	0.672	
	16,701,178	12.453	67,718,727	50.492	5,020	86,624,927	67.948	

OTHER NON-RECURRING COSTS --	CPI	
(DR)	22,176,000	0.
(SEI)	15,051,232	16,535
(SWJ)	5,516,297	11,222
(JGI)	1,769,194	3,964
(PAI)	0	1,319
(RD)	5,340,000	0.
(PM)	0	3,982
(SPRS)	40,892	0.
(WMC)	0	0,030
		0.
TOTAL NRC	134,118,839	100,000

REPORT NO. 6 -- RELIABILITY/MAINTAINABILITY, AND AVAILABILITY BY SUBSYSTEM

OUTPUT FILE - NON-DAILY COST DATA BANK (HISTORICAL)

SUBSYS	MFH/MMA	MTR		MTR/AFH		MMH/KFM		AVAIL	SUBSYSTEM LCC CONTRIBUTION	
		FLIGHT	SHOP	FLIGHT	SHOP	FLIGHT	SHOP		FLIGHT	SHOP
AA110	34.00	5.059	2.638	148.793	77.597	289.821	133.469	0.87048	3,875,231.8	12,937,867.4
AA120	30.60	5.803	3.859	189.624	126.120	365.359	223.610	0.84060	4,870,436.3	14,816,507.4
AA210	185.30	3.867	0.348	20.867	1.880	41.733	2.871	0.97956	564,849.6	1,342,639.8
AA220	1275.00	2.802	2.695	2.198	2.114	4.395	4.227	0.99781	49,778.6	3,912,000.0
AC110	40.80	1.894	2.231	46.414	54.675	88.417	109.346	0.95564	1,203,355.1	4,022,422.5
AC210	64.60	2.261	2.166	35.002	33.525	65.637	67.059	0.96618	888,402.5	2,564,956.7
AC310	71.40	2.707	1.331	37.908	18.640	75.815	36.825	0.92348	1,054,100.8	2,088,632.6
AC320	34.00	2.033	2.407	59.790	70.802	103.639	138.584	0.94358	1,360,717.0	3,397,995.4
AC330	243.10	2.305	0.602	9.483	2.477	18.945	4.954	0.99061	279,179.8	655,102.9
AC410	146.20	2.317	1.006	15.845	6.881	31.691	13.762	0.98440	444,524.6	427,213.9
AC510	81.60	1.990	1.195	24.387	14.644	48.775	29.288	0.97619	648,444.4	1,781,971.0
AC610	81.60	1.484	0.360	18.186	4.410	36.372	6.079	0.98214	500,343.6	1,952,935.7
AI110	54.40	3.114	0.374	57.235	6.884	114.471	8.418	0.94586	1,273,398.6	1,790,668.1
AI120	680.00	3.719	0.949	5.469	1.396	10.938	1.396	0.99456	124,867.4	443,212.5
AI130	56.10	3.969	3.890	70.749	69.341	138.147	120.707	0.93393	1,839,296.4	21,645,750.0
AI140	66.30	1.856	0.814	27.700	12.281	55.399	21.876	0.97305	761,586.2	2,217,325.3
AI160	408.00	2.782	1.734	6.819	4.249	13.637	4.249	0.99323	188,100.4	1,226,817.2
AI210	1150.90	5.800	1.760	5.040	1.529	10.079	2.851	0.99499	152,546.6	654,904.0
AI220	74.80	3.270	0.813	43.716	10.869	87.431	16.488	0.95812	985,086.2	2,790,140.0
AI230	39.10	2.119	2.403	54.188	61.456	97.321	120.670	0.94860	1,237,397.9	3,086,281.9
AI240	105.40	1.860	0.607	17.643	5.759	35.287	11.350	0.98266	453,518.9	720,101.0
AI270	35.70	2.726	1.249	76.370	34.982	152.739	69.964	0.92905	2,014,929.7	3,209,797.6
AI280	108.80	1.420	0.614	13.051	5.645	26.103	11.291	0.98712	342,666.6	1,397,747.4
AI310	17.00	5.315	3.331	313.798	195.942	573.478	391.095	0.76115	7,607,403.7	19,726,997.8
AI320	64.60	4.149	2.908	64.227	45.015	128.454	89.836	0.93965	1,426,116.1	3,351,812.2
AI330	27.20	3.885	3.391	142.831	124.671	265.331	249.342	0.87502	3,912,292.4	15,747,157.5
AI340	25.50	3.026	2.753	118.668	107.979	193.279	219.957	0.89392	2,466,455.5	20,122,632.0
AI350	23.80	2.468	3.995	103.697	167.847	200.672	326.400	0.90805	2,648,787.6	16,635,226.0
AI360	95.20	2.708	1.761	28.441	18.493	56.883	36.987	0.97235	855,687.3	4,557,520.3

# REPORT NO. 7

## MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUT-OF-FILE - NON-BASE COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AFPH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT FLIGHTLINE (FRNL N:M)	TOTAL LABOR (MURF N:M)	DIRECT MMH/FM SHOP (SMRH N:M)	TOTAL LABOR SHOP (MURS N:M)	TOTAL LABOR	TOTAL COST
22-51	7.026771							
AA110			0.13515	5838.302	0.05587	2413.698	82.2.000	81.336.1
AA120			0.16920	7309.412	0.09749	4211.576	11520.988	113.559.7
AA210			0.01979	854.814	0.00099	42.807	897.622	8.867.7
AM120			0.06363	2757.577	0.05137	2218.994	4976.571	49.052.9
AM310			0.24792	10709.941	0.19515	8430.389	19140.530	188.663.8
AM340			0.06677	2884.354	0.10798	4664.678	7549.032	74.409.1
AM350			0.08978	3878.561	0.15855	6849.466	10728.028	105.743.7
TOTAL			0.79243	34232.962	0.66740	29831.809	65064.771	621.615.0

22-51	11.521771							
AA110			0.14291	6173.737	0.07760	3352.162	9325.919	136.715.8
AA120			0.18309	7909.412	0.12612	5448.367	13357.779	191.707.8
AA210			0.01979	854.814	0.00188	81.230	916.044	13.433.9
AM120			0.06718	2902.347	0.06934	2995.539	5897.886	86.665.1
AM310			0.26203	13047.823	0.00199	85.937	85.937	1.233.4
AM340			0.06677	2884.354	0.19594	8464.714	21512.537	308.763.0
AM350			0.09408	4064.430	0.10798	4664.678	7549.032	108.582.0
TOTAL			0.87585	37836.918	0.74870	32343.639	70180.558	1.007.215.5

REPORT NO. 7  
MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DATA COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LAUNCH DEVOTED TO DIRECT LAUNCH (EFF) = 60.00%

AFSC	SUBSYS	LABOR RATE (LLR M)	DIRECT MMH/FM (FMMH N/M)	TOTAL LAUNCH (MURF N/M)	FLIGHTLINE (MURF N/M)	DIRECT MMH/FM SHOP (SMMH N/M)	TOTAL LAUNCH (MURF N/M)	TOTAL COST
32531		7.026771						
	A1110		0.05356	2313.741	0.00047	20.141	2333.882	23004.54
	A1120		0.00518	223.560	0.	0.	223.560	2203.58
	A1130		0.04104	1773.008	0.00333	143.756	1916.764	18893.10
	A1130		0.00427	184.440	0.	0.	184.440	1817.99
	A1320		0.06113	2640.857	0.04482	1936.278	4577.135	45115.77
	TOTAL		0.16518	7135.607	0.04862	2100.174	9235.781	91034.98

32531		11.521771						
	A1110		0.05356	2313.741	0.00048	297.171	2611.113	37,474.1
	A1120		0.00518	223.560	0.00140	60.289	283.849	4,073.7
	A1130		0.04104	1773.008	0.00888	383.586	2156.594	30,950.9
	A1130		0.00427	184.440	0.	0.	184.440	2,647.0
	A1320		0.06113	2640.857	0.04501	1944.648	4585.505	65,810.1
	TOTAL		0.16518	7135.607	0.06217	2685.895	9821.502	140,955.9

# REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DAYS COST DATA MARK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AMFH) = 25920.00

NUMBER OF BASES (NB) = 3

PERCENT OF TOTAL LABOUR DEVOTED TO DIRECT LABOUR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOUR RATE (LLR N)	DIRECT MANH/PM FLIGHTLINE (PMH N,PM)	TOTAL LABOUR FLIGHTLINE (MURF N,PM)	DIRECT MANH/PM SHOP (SMH N,PM)	TOTAL LABOUR SHOP (MURS N,PM)	TOTAL LABOUR	TOTAL COST
5261A		7.026771						
	AA110	0.	0.	0.	0.01130	487.976	487.976	4809.87
	AA120	0.	0.	0.	0.01622	700.715	700.715	4906.79
	AC110	0.	0.	0.	0.00896	387.002	387.002	3814.59
	AC210	0.	0.	0.	0.00623	269.075	269.075	2632.21
	AC320	0.	0.	0.	0.00912	394.124	394.124	3884.79
	AC330	0.	0.	0.	0.00039	25.535	25.535	251.70
	AC510	0.	0.	0.	0.00499	215.746	215.746	2126.56
	AC610	0.	0.	0.	0.00196	84.484	84.484	832.71
	AM110	0.	0.	0.	0.00042	17.940	17.940	176.83
	AM120	0.	0.	0.	0.00718	310.131	310.131	3056.89
	AM210	0.	0.	0.	0.00024	10.271	10.271	101.24
	AM220	0.	0.	0.	0.01333	584.616	584.616	5762.43
	AM330	0.	0.	0.	0.00214	92.499	92.499	911.74
	AM220	0.	0.	0.	0.00371	160.124	160.124	1578.30
	TOTAL	0.	0.	0.	0.08658	3740.239	3740.239	36866.67

5262A		11.521771						
	AA110	0.	0.	0.	0.01130	487.976	487.976	7003.32
	AA120	0.	0.	0.	0.01622	700.715	700.715	10036.51
	AC110	0.	0.	0.	0.00896	387.002	387.002	5534.17
	AC210	0.	0.	0.	0.00623	269.075	269.075	3861.70
	AC320	0.	0.	0.	0.00912	394.124	394.124	5656.37
	AC330	0.	0.	0.	0.00039	25.535	25.535	366.48
	AC510	0.	0.	0.	0.00499	215.746	215.746	3096.34
	AC610	0.	0.	0.	0.00196	84.484	84.484	1212.49
	AM110	0.	0.	0.	0.00042	17.940	17.940	257.48
	AM120	0.	0.	0.	0.00718	310.131	310.131	4450.93
	AM210	0.	0.	0.	0.00024	10.271	10.271	147.40
	AM220	0.	0.	0.	0.01333	584.616	584.616	8390.28
	AM330	0.	0.	0.	0.00214	92.499	92.499	1327.52
	AM220	0.	0.	0.	0.00371	160.124	160.124	2298.06
	TOTAL	0.	0.	0.	0.08658	3740.239	3740.239	53679.05



REPORT NO. 7

MANUUM COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DATES COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AMFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (PDL) = 00.003

AFSC	SUBSYS	LOADER LABOR RATE (LLR N)	DIRECT AMH/PM FLIGHTLINE (DMM N,M)	TOTAL LABOR FLIGHTLINE (TMM N,M)	DIRECT AMH/PM SHOP (DMM N,M)	TOTAL LABOR SHOP (TMM N,M)	TOTAL LABOR	TOTAL COST
57650		7.026771						
	AN210	0.	0.	0.	0.00069	29.084	29.084	292.59
	AN220	0.	0.	0.	0.00023	9.018	9.018	96.77
	AL310	0.	0.	0.	0.00303	130.018	130.018	1289.44
	AL320	0.	0.	0.	0.00316	50.166	50.166	494.68
	AL330	0.	0.	0.	0.00031	4.276	4.276	47.07
	AL620	0.	0.	0.	0.00089	38.567	38.567	380.14
	AL610	0.	0.	0.	0.00019	8.169	8.169	80.52
	AL110	0.	0.	0.	0.00191	82.578	82.578	813.95
	AL120	0.	0.	0.	0.00027	11.627	11.627	114.61
	AL130	0.	0.	0.	0.00224	96.728	96.728	953.42
	AN140	0.	0.	0.	0.00126	54.023	54.023	538.42
	AN170	0.	0.	0.	0.00366	169.565	169.565	1674.23
	AN150	0.	0.	0.	0.00186	80.514	80.514	793.61
	AN210	0.	0.	0.	0.01419	612.991	612.991	6042.12
	AN310	0.	0.	0.	0.03051	1318.231	1318.231	12993.51
	AN320	0.	0.	0.	0.01255	542.136	542.136	5343.71
	AN330	0.	0.	0.	0.01007	435.002	435.002	4287.71
	AN340	0.	0.	0.	0.01297	560.228	560.228	5522.04
	AN350	0.	0.	0.	0.02563	1107.403	1107.403	10915.42
	AN360	0.	0.	0.	0.00331	143.063	143.063	1410.14
	TOTAL	0.	0.	0.	0.12654	5466.088	5466.088	53883.90

REPORT NO. 7

MANHOOR COSTS PER TEAM BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-BASE COST DATA WARR (HISTORICAL)

ANNUAL BASE FLYING HOURS (AUMH) = 25920.00

NUMBER OF BASES (MB) = 1

PERCENT OF TOTAL LABOUR DEVOTED TO DIRECT LABOUR (EPR) = 60.00%

AFSC	SUBSYS	LOADED LABOUR RATE (ILL M)	DIRECT MMH/PM FLIGHTLINE (FMMH N-M)	TOTAL LABOUR FLIGHTLINE (MURF N-M)	DIRECT MMH/PM SHOP (SMH N-M)	TOTAL LABOUR SHOP (MURS N-M)	TOTAL COST
1705H		11.521771					
	AA210	0.	0.	0.	0.00069	29.684	426.02
	AA220	0.	0.	0.	0.00023	9.818	140.90
	AC310	0.	0.	0.	0.00303	130.818	1877.46
	AC320	0.	0.	0.	0.00116	50.166	719.98
	AC330	0.	0.	0.	0.00011	4.776	68.54
	AC410	0.	0.	0.	0.00089	38.567	553.50
	AC410	0.	0.	0.	0.00019	8.169	117.24
	AI110	0.	0.	0.	0.00191	82.578	1185.14
	AI120	0.	0.	0.	0.00027	11.627	166.87
	AI130	0.	0.	0.	0.00224	96.728	1388.21
	AI140	0.	0.	0.	0.00126	54.625	783.96
	AI110	0.	0.	0.	0.00346	149.565	2146.52
	AI130	0.	0.	0.	0.00186	80.514	1155.52
	AI210	0.	0.	0.	0.01419	612.491	8797.51
	AI210	0.	0.	0.	0.03051	1318.231	18918.96
	AI220	0.	0.	0.	0.01255	542.136	7780.61
	AI230	0.	0.	0.	0.01007	435.002	6243.05
	AI240	0.	0.	0.	0.01297	560.228	8040.27
	AI330	0.	0.	0.	0.02563	1107.403	15893.20
	AI360	0.	0.	0.	0.00331	143.063	2033.21
	TOTAL	0.	0.	0.	0.12654	5466.688	78456.66

REPORT NO. 7

MANPOWER COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-BASE COST DATA MARK (HISTORICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00

NUMBER OF BASES (NBS) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED RATE (LLR M)	DIRECT MAN/FFH FLIGHTLINE (FMMH M/M)	TOTAL LABOR FLIGHTLINE (MURF N/M)	DIRECT MAN/FFH SHOP (SMFH M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL COST
12050		7.026771					
	AC110		0.03710	1602.741	0.03383	1461.292	3064.034
	AC210		0.02734	1189.699	0.03332	1448.260	2637.959
	AC310		0.03511	1516.598	0.01818	785.578	2302.176
	AC320		0.03797	1640.152	0.06778	2928.184	4568.336
	AC330		0.00866	374.104	0.00248	107.013	4742.3
	AC410		0.01448	625.425	0.00632	273.225	898.650
	AC610		0.01573	679.744	0.00167	72.085	7410.6
	TOTAL		0.17658	7628.662	0.16379	7075.638	14704.099
							146,934.9

12050		11.521771					
	AC110		0.04151	1793.329	0.03383	1461.292	3254.622
	AC210		0.03191	1378.334	0.03332	1448.260	2826.595
	AC310		0.03511	1516.598	0.01818	785.578	2321.867
	AC320		0.03391	2328.810	0.07080	3058.629	5387.440
	AC330		0.00866	374.104	0.00248	107.013	481.117
	AC410		0.01448	625.425	0.00632	273.225	898.650
	AC610		0.01573	679.744	0.00167	72.085	870.252
	TOTAL		0.20130	8496.344	0.17000	7344.198	16040.543
							230,210.2

REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DATA COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AFHM) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT MMH/FH FLIGHTLINE (FMMH M,M)	TOTAL LABOR FLIGHTLINE (MMH M,M)	DIRECT MMH/FH SHOP (SMMH M,M)	TOTAL LABOR SHOP (HOURS M,M)	TOTAL LABOR	TOTAL COST
AC110	7.026771	0.	0.	0.	0.02085	900.580	900.580	8,876.8
AC110		0.	0.	0.	0.00056	24.038	24.038	236.9
AC110		0.02194	947.647	947.647	0.01466	632.631	1580.278	15,576.4
AM120		0.03802	1642.373	1642.373	0.05921	2558.061	4200.434	41,402.7
AM130		0.01148	495.775	495.775	0.00562	242.982	738.757	7,281.8
AM210		0.07077	3057.156	3057.156	0.03498	1511.219	4568.376	45,029.4
AM220		0.01121	484.412	484.412	0.00565	243.876	728.287	7,178.6
TOTAL		0.15361	6627.364	6627.364	0.14151	6113.586	12740.750	125,582.7

AC110	11.521771	0.	0.	0.	0.02085	900.580	900.580	12,924.9
AC110		0.	0.	0.	0.00056	24.038	24.038	345.0
AC110		0.02194	947.647	947.647	0.01466	632.631	1580.278	22,679.8
AM120		0.04907	2119.949	2119.949	0.06146	2654.899	4774.847	68,527.5
AM130		0.01148	495.775	495.775	0.00573	247.355	743.130	10,661.2
AM210		0.07077	3057.156	3057.156	0.03498	1511.219	4568.376	45,564.3
AM220		0.01121	484.412	484.412	0.00565	243.876	728.287	10,452.2
TOTAL		0.16467	7104.939	7104.939	0.14386	6216.597	13319.537	191,158.9

# REPORT NO. 7

## MANUUM COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

### UNITED FILL - NON-DAYS COST DATA WARE (HISTORICAL)

ANNUAL BASE FLYING HOURS (ANFM) = 25920.00

NUMBER OF BASES (NB) = 3

PERCENT OF TOTAL LAUNCH DEVOTED TO DIRECT LAUNCH (EFF) = 60.00%

AFSC	SUBSYS	LOADED		DIRECT		TOTAL		DIRECT		TOTAL		TOTAL COST
		LAUNCH RATE (LLR M)	MMH/FM	FLIGHTLINE (FMM M/M)	FLIGHTLINE (MURF M/M)	LAUNCH SHOP (MURF M/M)	FLIGHTLINE SHOP (MURF M/M)	MMH/FM	FLIGHTLINE	LAUNCH SHOP	FLIGHTLINE	
32653		7.026771		0.02468	1066.304	0.00960	414.505	0.00960	414.505	1480.809	273.388	14595.99
	AM130			0.00633	273.388	0.	0.	0.	0.	273.388		2694.75
	AM140											
	TOTAL			0.03101	1339.692	0.00960	414.505	0.00960	414.505	1754.197		17290.72

32653		11.521771		0.02468	1066.304	0.01228	530.539	0.01228	530.539	1596.845	458.941	22917.52	
	AM130			0.00633	273.388	0.00425	183.552	0.00425	183.552	458.941		6537.91	
	AM140												
	TOTAL			0.03101	1339.692	0.01653	714.091	0.01653	714.091	2055.785		29475.43	

32654		7.026771		0.11515	4974.353	0.12467	5385.785	0.12467	5385.785	10360.138	1936.824	102,117.5	
	AM130			0.02634	1137.907	0.01869	798.917	0.01869	798.917	1936.824		19,090.8	
	AM140												
	TOTAL			0.14149	6112.260	0.14336	6184.702	0.14336	6184.702	12296.962		121,208.3	

32654		11.521771		0.11515	5852.647	0.12467	5385.785	0.12467	5385.785	11236.432	1936.824	161,691.6	
	AM130			0.02634	1137.907	0.01869	798.917	0.01869	798.917	1936.824		27,796.9	
	AM140												
	TOTAL			0.14182	6990.554	0.14336	6184.702	0.14336	6184.702	13175.256		189,088.5	

REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-BASIS COST DATA BANK (HISTORICAL)

ANNUAL WAGE FLYING HOURS (AMFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT MM/FH FLIGHTLINE (FMMH M/FH)	TOTAL LABOR FLIGHTLINE (MURF M/FH)	DIRECT MM/FH SHOP (SMMH M/FH)	TOTAL LABOR SHOP (MURS M/FH)	TOTAL LABOR	TOTAL COST
40431		7.026771	0.00487	210.201	0.00132	57.109	267.309	2634.806
AM210			0.00487	210.201	0.00132	57.109	267.309	2634.806
TOTAL			0.00487	210.201	0.00132	57.109	267.309	2634.806

40431		11.521771	0.00487	210.201	0.00153	66.054	276.254	3964.740
AM210			0.00487	210.201	0.00153	66.054	276.254	3964.740
TOTAL			0.00487	210.201	0.00153	66.054	276.254	3964.740

REPORT NO. 7

MANHOOR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DALS COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AUMH) = 25926.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOUR DEVOTED TO DIRECT LABOUR (EFF) = 60.00%

AFSC	SUBSYS	LOADED RATE (CLR M)	DIRECT MMH/FM FLIGHTLINE (FMMH M/M)	TOTAL LABOUR FLIGHTLINE (MURF M/M)	DIRECT MMH/FM SHOP (SMH M/M)	TOTAL LABOUR SHOP (MURS M/M)	TOTAL LABOUR	TOTAL COST
42152	AM110	11.521771	0.	0.	0.00029	12.613	12.613	181.0242
	TOTAL	0.	0.	0.	0.00029	12.613	12.613	181.0242
42153	AM110	11.521771	0.00388	254.118	0.	0.	254.118	3447.04
	AM120	0.00454	0.00454	282.353	0.	0.	282.353	4032.26
	AM210	0.00108	0.00108	6.627	0.	0.	6.627	669.18
	AM220	0.00016	0.00016	6.776	0.	0.	6.776	97.25
	AC110	0.00490	0.00490	211.745	0.	0.	211.745	3019.20
	AC210	0.00310	0.00310	133.746	0.	0.	133.746	1919.49
	AC310	0.00280	0.00280	121.008	0.	0.	121.008	1736.68
	AC320	0.00388	0.00388	254.118	0.	0.	254.118	3447.04
	AC330	0.00082	0.00082	35.541	0.	0.	35.541	510.08
	AC410	0.00137	0.00137	59.097	0.	0.	59.097	848.15
	AC510	0.00245	0.00245	105.882	0.	0.	105.882	1519.60
	AC610	0.00245	0.00245	105.882	0.	0.	105.882	1519.60
	AI110	0.00368	0.00368	158.824	0.	0.	158.824	2279.40
	AI120	0.00029	0.00029	12.704	0.	0.	12.704	182.35
	AM120	0.00357	0.00357	154.011	0.	0.	154.011	2210.33
	AM130	0.00302	0.00302	130.317	0.	0.	130.317	1870.28
	AM140	0.00049	0.00049	21.176	0.	0.	21.176	303.92
	AM210	0.00017	0.00017	7.507	0.	0.	7.507	107.74
	AM110	0.00267	0.00267	115.508	0.	0.	115.508	1657.74
	AM120	0.00512	0.00512	220.922	0.	0.	220.922	3171.34
	AM130	0.00190	0.00190	81.973	0.	0.	81.973	1176.46
	AM210	0.00360	0.00360	242.017	0.	0.	242.017	3473.37
	AM220	0.00184	0.00184	79.412	0.	0.	79.412	1139.70
	AM310	0.01176	0.01176	508.235	0.	0.	508.235	7294.08
	AM320	0.00310	0.00310	133.746	0.	0.	133.746	1919.49
	AM330	0.00735	0.00735	317.647	0.	0.	317.647	4558.90
	AM340	0.00784	0.00784	338.824	0.	0.	338.824	4862.72
	AM350	0.00840	0.00840	363.025	0.	0.	363.025	5210.05
	AM360	0.00210	0.00210	90.756	0.	0.	90.756	1302.51
	TOTAL	0.10633	4593.570	0.	0.	0.	4593.570	65925.86

# REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DATA COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING MOURS (ABFM) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LAUOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT MMH/FH FLIGHTLINE (FMMH M/M)	TOTAL LABOR FLIGHTLINE (MURF M/M)	DIRECT MMH/FH SHOP (SMMH M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL LABOR	TOTAL COST
43151		11.521771	0.04406	1903.290	0.	0.	1903.290	27315.59
	AM340		0.04406	1903.290	0.	0.	1903.290	27315.59
	TOTAL		0.04406	1903.290	0.	0.	1903.290	27315.59

43171		11.281771	0.00588	254.118	0.	0.	254.118	3586.05
	AM110		0.00654	282.353	0.	0.	282.353	3984.50
	AM210		0.00108	46.627	0.	0.	46.627	637.99
	AM220		0.00016	6.776	0.	0.	6.776	95.63
	AC110		0.00490	211.765	0.	0.	211.765	2988.37
	AC210		0.00310	133.746	0.	0.	133.746	1887.19
	AC310		0.00280	121.008	0.	0.	121.008	1707.84
	AC320		0.00588	254.118	0.	0.	254.118	3586.05
	AC330		0.00082	35.541	0.	0.	35.541	501.55
	AC410		0.00137	59.097	0.	0.	59.097	833.97
	AC510		0.00245	105.882	0.	0.	105.882	1494.19
	AC610		0.00245	105.882	0.	0.	105.882	1494.19
	AM110		0.00368	158.824	0.	0.	158.824	2241.28
	AM120		0.00029	12.706	0.	0.	12.706	179.30
	AM120		0.00357	154.011	0.	0.	154.011	2173.36
	AM130		0.00302	130.317	0.	0.	130.317	1859.00
	AM140		0.00049	21.176	0.	0.	21.176	298.84
	AM210		0.00017	7.507	0.	0.	7.507	105.94
	AM110		0.00267	115.508	0.	0.	115.508	1630.02
	AM120		0.00512	220.972	0.	0.	220.972	3118.30
	AM130		0.00190	81.973	0.	0.	81.973	1156.79
	AM210		0.00560	242.017	0.	0.	242.017	3415.29
	AM220		0.00184	79.412	0.	0.	79.412	1120.64
	AM310		0.01176	508.235	0.	0.	508.235	7172.10
	AM320		0.00510	133.746	0.	0.	133.746	1887.19
	AM330		0.00235	117.667	0.	0.	117.667	1642.56
	AM340		0.00784	363.824	0.	0.	363.824	4781.40
	AM350		0.00840	363.025	0.	0.	363.025	5122.93
	AM360		0.00210	90.756	0.	0.	90.756	1280.73
	TOTAL		6.11633	4595.570	0.	0.	4595.570	64823.40



REPORT NO. 7

MANHOOR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - NON-DATA COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AUFM) = 25920.00  
NUMBER OF BASES (NB) = 1  
PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 40.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT MMH/FM FLIGHTLINE (FMMH M/M)	TOTAL LABOR FLIGHTLINE (MUFF M/M)	DIRECT MMH/FM SHOP (SMH M/M)	TOTAL LABOR SHOP (MUMS M/M)	TOTAL LABOR	TOTAL COST
6230		7.026771						
AA220			0.00204	88.162	0.00211	91.312	179.473	1769.029
TOTAL			0.00204	88.162	0.00211	91.312	179.473	1769.029

6250		11.521771						
AA220			0.00204	88.162	0.00211	91.312	179.473	2575.762
TOTAL			0.00204	88.162	0.00211	91.312	179.473	2575.762

5333		11.521771						
AI110			0.	0.	0.00107	46.165	46.165	662.569
TOTAL			0.	0.	0.00107	46.165	46.165	662.569

# REPORT NO. RA

## SPARES REQUIREMENTS -- INVESTMENT

UNIT-PUT FILE - NON-DATA COST DATA BANK (HISTORICAL)

NUMBER OF BASES (HUB) = 1

ANNUAL PEAK BASE FLYING HOURS (PFHF) = 51840.00

EXPEDITED BACK ORDER (EBO) = 0.10

DEPOT REPAIR CYCLE TIME (DRCT) = 0.17 YRS.  
BASE REPAIR CYCLE TIME (BRCT) = 0.13 YRS.

LNU	SHOP SPARES		DEPOT SPARES		UNIT COST		COST OF LRU SPARES		COST OF SRU SPARES		TOTAL COST
	LRU (STKL)	SRU (STNS)	LRU (OPLL)	SRU (OPLS)	LRU (UC)	SRU (UCSRU)	LRU (LRUSS)	SRU (LRUDS)	LRU (SRUSS)	SRU (SRUDS)	
AA111	1	1	4.90545	12.35259	50000	3571.43	50,000.0	245,272.6	3,571.4	44,116.4	342,960.4
AA112	1	1	5.79504	43.48823	10000	909.09	10,000.0	57,950.4	909.1	39,536.8	108,394.3
AA113	1	1	23.02766	42.19197	30000	4285.71	30,000.0	690,829.9	4,285.7	180,822.7	905,938.3
AA121	1	1	43.20864	140.41396	60000	3157.89	60,000.0	2,592,518.4	3,157.9	443,412.5	3,099,088.8
AA124	1	3	1.13793	2.91944	700	100.00	700.0	796.6	300.0	291.9	2,088.5
AA210	1	0	8.11474	0.	10000	2000.00	10,000.0	81,147.4	0.	0.	91,147.4
AA224	1	3	0.	3.70883	43898	1125.59	43,898.0	0.	3,376.8	4,174.6	51,449.4
AC111	1	1	3.07120	27.15306	10546	958.73	10,546.0	32,388.9	958.7	26,033.0	69,926.6
AC112	1	1	2.77467	30.14014	15738	1311.50	15,738.0	43,627.8	1,311.5	39,528.8	100,246.1
AC113	1	7	4.51149	5.82469	5016	5016.00	5,016.0	22,629.6	35,112.0	29,216.7	91,974.3
AC114	1	9	0.69896	10.20910	5495	5495.00	5,495.0	3,840.8	49,455.0	56,099.0	114,889.8
AC114	1	5	0.93195	5.42226	13299	2216.50	13,299.0	12,394.0	11,082.5	12,018.4	45,794.0
AC119	1	5	0.	6.52366	2709	677.25	2,709.0	0.	3,386.3	4,418.1	10,513.4
AC211	1	1	0.05316	56.54580	4823	283.71	4,823.0	29,097.9	283.7	16,042.4	50,247.0
AC212	2	1	0.	1.37786	5000	5000.00	10,000.0	0.	5,000.0	6,889.3	21,889.3
AC214	3	2	0.	2.20725	665	665.00	1,995.0	0.	1,330.0	1,467.8	4,792.8
AC311	1	1	17.16242	9.60999	2153	269.13	2,153.0	36,950.7	269.1	2,586.3	41,959.1
AC312	1	3	1.90021	1.90021	900	900.00	900.0	1,710.2	2,700.0	1,710.2	7,020.4
AC314	1	1	5.13178	11.05028	539	539.00	539.0	2,766.0	539.0	5,956.1	9,800.1
AC319	6	2	1.01667	1.01667	1100	1100.00	6,600.0	1,118.3	2,200.0	1,118.3	11,036.7
AC321	2	1	0.70212	106.80159	4581	458.10	4,581.0	21,540.4	458.1	48,925.8	75,505.3
AC322	1	1	0.12708	1.04209	700	350.00	1,400.0	89.0	350.0	364.7	2,203.7
AC323	4	1	0.71167	0.71167	168	168.00	672.0	119.6	168.0	119.6	1,079.1
AC324	1	1	0.55917	12.14925	1079	1079.00	1,079.0	603.3	1,079.0	13,109.0	15,870.4
AC324	1	8	6.58296	5.21045	654	654.00	654.0	4,305.3	5,272.0	3,407.6	13,598.9
AC331	3	1	0.	0.92425	657	328.50	1,971.0	0.	328.5	303.6	2,603.1
AC332	5	1	1.04867	0.51900	960	960.00	4,800.0	1,006.7	960.0	498.2	7,265.0
AC333	4	2	0.	2.05823	2691	269.10	10,764.0	0.	518.2	553.9	11,856.1
AC334	6	2	1.05933	1.06289	133	133.00	798.0	140.9	266.0	141.4	1,346.3
AC334	5	2	0.79272	1.05222	554	554.00	2,770.0	439.2	1,108.0	582.9	4,900.1
AC311	1	8	1.55457	8.25752	606	75.75	606.0	942.1	606.0	625.5	2,779.6
AC312	1	5	0.	6.72069	308	44.00	308.0	0.	220.0	295.7	823.7
AC313	1	0	2.32889	0.	200	200.00	200.0	445.8	0.	0.	645.8
AC311	1	1	5.04101	24.76025	2654	221.17	2,654.0	13,378.8	221.2	5,476.1	21,730.1
AC314	1	6	0.	7.59328	124	124.00	124.0	744.0	744.0	941.6	1,809.6
AL310	3	0	0.86841	0.	8000	8000.00	24,000.0	6,947.3	0.	0.	30,947.3
AL310	1	2	0.	2.75349	454	50.44	454.0	0.	100.9	158.9	695.8
AL311	1	0	29.26114	0.	8000	8000.00	8,000.0	234,089.2	0.	0.	242,089.2
AL312	3	1	0.50129	0.56129	207	207.00	207.0	116.2	207.0	116.2	1,060.4
AL314	7	3	0.45539	3.00766	554	554.00	3,878.0	252.3	1,666.2	1,666.2	7,458.5
AL311	1	4	11.37404	2.00158	2110	703.33	2,110.0	23,999.2	2,813.3	1,407.8	30,330.3

SHOP SPARES			DEPOT SPARES			UNIT COST		COST OF LRU SPARES			COST OF SRU SPARES			TOTAL COST
LRU	LRU (STKL)	SRU (STKS)	LRU (OPLL)	SRU (DPLS)	LRU (UC)	SRU (UCSRU)		SHOP (LRUSS)	DEPOT (LRUDS)		SHOP (SRUSS)	DEPOT (SRUDS)		
AM112	5	0	1,15964	0.	802	401.00		4,010.0	930.0		0.	0.		4,940.0
AM113	1	0	21,08010	0.	4109	684.83		4,109.0	86,618.1		0.	0.		90,727.1
AM114	1	2	23,06990	0.77839	317	52.83		317.0	7,306.8		105.7	41.1		7,770.6
AM121	1	0	9,27715	0.	2067	516.75		2,067.0	19,175.9		0.	0.		21,242.9
AM121	1	1	28,35904	83.75236	55082	6120.22		5,5082.0	1,562,072.6		6,120.2	512,583.1		2,135,837.9
AM13A	1	6	0.83419	6.66052	8097	809.70		8,097.0	6,754.5		4,858.2	5,393.0		25,102.7
AM13B	1	9	0.	11,05307	4500	375.00		4,500.0	0.		3,375.0	4,144.9		12,019.9
AM13C	1	4	2,59382	2,59382	2583	516.60		2,583.0	6,699.8		2,056.4	1,340.0		12,689.2
AM13D	8	4	0.	5,18764	1213	1213.00		9,706.0	0.		4,832.0	6,292.6		20,848.6
AM13E	2	1	0.	0.71689	79	79.00		156.0	0.		79.0	56.6		293.6
AM13F	1	9	0.	10,98790	901	901.00		901.0	0.		8,109.0	9,900.1		18,910.1
AM14A	1	1	12,52839	6,74605	8546	2848.67		8,546.0	107,067.6		2,848.7	19,217.3		137,679.5
AM211	1	1	0.	0.42274	4505	901.00		4,505.0	0.		901.0	380.9		5,786.9
AM212	2	0	0.59414	0.	118	59.00		236.0	45.4		0.	0.		301.4
AM213	1	1	0.	0.27707	300	150.00		300.0	0.		150.0	41.6		491.6
AM214	7	1	1,00166	0.44001	997	199.40		6,979.0	998.7		199.4	87.7		8,266.8
AM311	1	0	4,74833	0.	303	303.00		303.0	1,438.7		0.	0.		1,741.7
AM31A	1	0	14,07169	0.	3271	3271.00		3,271.0	46,028.5		0.	0.		49,299.5
AM31B	1	3	10,63197	1,77918	3229	3229.00		3,229.0	36,395.2		9,687.0	5,745.0		53,036.2
AM31C	1	6	0.	7,46331	799	133.17		799.0	0.		799.0	993.9		2,591.9
AM31D	1	0	6,34266	0.	5087	1271.75		5,087.0	32,265.1		0.	0.		37,352.1
AM31E	1	6	4,81765	3,93961	711	711.00		711.0	3,425.3		4,266.0	2,801.1		11,203.4
AM321	1	1	8,53122	148,56700	5705	335.59		5,705.0	46,670.6		335.6	49,857.3		106,568.5
AM322	1	0	4,28771	0.	700	700.00		700.0	3,001.4		0.	0.		3,701.4
AM32A	5	2	0.	2,56379	144	144.00		720.0	0.		288.0	369.2		1,377.2
AM32B	1	1	0.	20,84187	1727	287.83		1,727.0	948.7		287.8	5,999.0		8,962.5
AM32C	2	0	0.55753	0.	900	900.00		1,800.0	501.8		0.	0.		2,301.8
AM32D	3	1	0.58213	0.28696	185	185.00		555.0	107.7		185.0	33.1		900.8
AM32E	1	1	0.	20,87461	951	237.75		951.0	0.		237.8	4,962.9		6,131.7
AM32F	1	1	16,50885	90,86707	2206	367.67		2,206.0	36,418.5		367.7	33,401.4		72,393.6
AM32G	1	1	0.	1,33136	791	791.00		791.0	0.		791.0	1,033.1		2,635.1
AM32H	1	0	8,93221	0.	4305	4305.00		4,305.0	38,453.1		0.	0.		42,758.1
AM32I	1	0	27,76488	0.	1244	1244.00		1,244.0	34,539.5		0.	0.		35,783.5
AM32J	1	1	0.	0.58096	343	114.33		343.0	0.		114.3	66.4		523.8
AM32K	1	1	12,56545	29,32469	5705	1141.00		5,705.0	71,685.9		1,141.0	33,459.5		111,991.4
AM32L	1	0	2,47814	0.	923	923.00		923.0	2,287.3		0.	0.		3,210.3
AM32M	1	1	9,91257	34,71941	27085	2462.27		27,085.0	268,462.0		2,462.3	85,488.7		383,517.9
AM32N	1	1	2,13502	19,72347	15255	968.33		14,525.0	31,011.1		968.3	19,098.9		65,603.3
AM32O	1	1	3,35502	37,36277	17036	608.43		17,036.0	57,156.2		608.4	22,732.6		97,533.2
AM32P	1	3	4,77837	1,88085	6116	2038.67		6,116.0	29,224.5		6,116.0	3,834.4		45,290.9
AM32Q	4	2	0.	2,54168	364	121.33		1,456.0	0.		242.7	308.4		2,007.1
AM32R	1	6	0.35584	7,21838	10666	1777.67		10,666.0	3,795.3		10,666.0	12,831.9		37,959.2
AM32S	1	1	4,32420	71,62468	9996	908.73		9,996.0	45,223.9		908.7	63,087.3		121,215.9
AM32T	1	1	9,15006	49,10535	14676	489.20		14,676.0	134,286.4		489.2	24,022.3		173,473.9
AM32U	2	0	0.	0.	155	155.00		310.0	0.		0.	0.		310.0
AM32V	6	2	0.	2,49085	2579	859.67		15,474.0	0.		1,719.3	2,141.3		19,334.6
AM32W	1	3	0.	4,11753	2579	2579.00		2,579.0	0.		7,717.0	10,619.1		20,935.1
AM32X	1	1	6,14018	84,70499	12592	547.48		12,592.0	77,317.1		547.5	46,374.1		136,830.7
AM32Y	5	0	1,16382	0.	430	430.00		2,150.0	500.4		0.	0.		2,650.4
AM32Z	2	0	0.56185	0.	1292	1292.00		2,584.0	725.9		0.	0.		3,309.9

ITEM	SHOP SPARES		DEPOT SPARES		UNIT COST		COST OF LRU SPARES		COST OF SRU SPARES		TOTAL COST
	LRU (STKL) (STRS)	SRU (OPLS)	LRU (CUC)	SRU (CUCSRU)	LRU (LRUSS)	SRU (LRUSS)	DEPOT (LRUSS)	DEPOT (SRUSS)			
AN331	1	34,122.12	538.37	3564.81	53,837.0	1,837,032.6		225,139.1		2,119,273.3	
AN33A	1	1,652.10	38.33	1916.50	3,833.0	6,332.5		7,866.0		24,590.2	
AN33B	1	27,009.66	968.41	3026.28	96,841.0	2,615,640.2		3,026.3		2,955,185.6	
AN33C	1	2,033.35	109.80	1830.00	10,980.0	22,126.2		1,830.0		64,284.2	
AN33D	1	24,146.00	307.31	1138.19	30,731.0	742,030.9		1,138.2		887,219.4	
AN33E	1	20,079.31	232.28	10,991	23,228.0	466,402.2		1,009.9		540,914.3	
AN33F	1	7,316.62	263.99	1466.61	26,399.0	193,146.2		1,466.6		251,059.4	
AN33G	1	1,833.94	104.99	437.46	10,499.0	17,154.7		437.5		32,375.9	
TOTAL	197	580,345.01	8178.59	128565.55	903,817.0	12,863,159.6		250,860.3		16,701,178.5	

TOTAL ALL BASES	
SPARE PARTS (SPRIS)	16,701,178.5
WAR RESERVE MATERIAL COST (WRMC)	40,892.9
TOTAL	16,742,071.5

REPORT NO. BU

SPARES REQUIREMENTS PER YEAR -- REPLACEMENT

OUTPUT FILE - NON-BASE COST DATA BANK (HISTORICAL)

NUMBER OF BASES (NB) = 1  
ANNUAL BASE FLYING HOURS (ABFH) = 25020.00

ARTS PROB.	CONDENSATION RATE			UNIT COST			COST OF SPARES			TOTAL COST
	LRU	(FCL)	SRU	(FCS)	LRU	(UCSRU)	(LRUS)	SRU	(SRUS)	
AA111	0.01930	0.01	0.05	0.05	50000.00	3571.43	7,356.7	0,616.1	0,616.1	13,972.8
AA112	0.02280	0.01	0.05	0.05	10000.00	909.09	1,758.2	5,929.0	5,929.0	7,687.2
AA113	0.02060	0.01	0.05	0.05	30000.00	4285.71	20,720.8	27,118.0	27,118.0	47,838.7
AA121	0.15300	0.01	0.05	0.05	60000.00	3152.89	77,760.0	66,498.6	66,498.6	144,258.6
AA21A	0.02440	0.01	0.05	0.05	700.00	100.00	23.9	43.8	43.8	67.7
AA21B	0.17400	0.01	0.05	0.05	10000.00	2000.00	2,433.9	0.	0.	2,433.9
AA22A	0.	0.01	0.05	0.05	43898.00	1125.59	0.	626.1	626.1	626.1
AC111	0.01450	0.01	0.05	0.05	10546.00	958.73	971.5	3,904.2	3,904.2	4,875.6
AC112	0.01310	0.01	0.05	0.05	15738.00	1311.50	1,309.8	5,928.1	5,928.1	7,237.9
AC113	0.02130	0.01	0.05	0.05	5016.00	5016.00	678.8	4,381.6	4,381.6	5,060.4
AC114	0.00330	0.01	0.05	0.05	5495.00	5495.00	115.2	8,413.2	8,413.2	8,528.4
AC11A	0.00640	0.01	0.05	0.05	13299.00	2216.50	371.7	1,802.4	1,802.4	2,174.2
AC11B	0.	0.01	0.05	0.05	2709.00	677.25	0.	662.6	662.6	662.6
AC211	0.04510	0.01	0.05	0.05	4823.00	283.71	872.8	2,403.9	2,403.9	3,276.6
AC212	0.	0.01	0.05	0.05	5000.00	5000.00	0.	1,033.2	1,033.2	1,033.2
AC21A	0.	0.01	0.05	0.05	665.00	665.00	0.	220.1	220.1	220.1
AC311	0.14180	0.01	0.05	0.05	2153.00	269.13	1,108.3	387.9	387.9	1,496.2
AC312	0.01570	0.01	0.05	0.05	900.00	900.00	51.5	256.5	256.5	307.8
AC31A	0.04240	0.01	0.05	0.05	539.00	539.00	83.0	893.2	893.2	976.2
AC31B	0.00840	0.01	0.05	0.05	1100.00	1100.00	33.5	167.7	167.7	201.3
AC321	0.01850	0.01	0.05	0.05	4581.00	4581.00	646.1	7,337.4	7,337.4	7,983.5
AC322	0.00050	0.01	0.05	0.05	700.00	350.00	2.7	54.7	54.7	57.4
AC323	0.00280	0.01	0.05	0.05	148.00	148.00	3.6	17.9	17.9	21.5
AC32A	0.00220	0.01	0.05	0.05	1079.00	1079.00	18.1	1,966.0	1,966.0	1,984.1
AC32B	0.02590	0.01	0.05	0.05	654.00	654.00	129.1	511.0	511.0	640.2
AC331	0.	0.01	0.05	0.05	657.00	328.50	0.	45.5	45.5	45.5
AC332	0.02950	0.01	0.05	0.05	960.00	960.00	30.2	74.7	74.7	104.9
AC333	0.	0.01	0.05	0.05	2691.00	2691.00	0.	83.1	83.1	83.1
AC334	0.02980	0.01	0.05	0.05	133.00	133.00	4.2	21.2	21.2	25.4
AC33A	0.02230	0.01	0.05	0.05	554.00	554.00	13.2	87.4	87.4	100.6
AC411	0.02630	0.01	0.05	0.05	606.00	75.75	28.3	93.8	93.8	122.1
AC412	0.	0.01	0.05	0.05	308.00	44.00	0.	44.3	44.3	44.3
AC413	0.03940	0.01	0.05	0.05	200.00	200.00	14.0	0.	0.	14.0
AC511	0.04760	0.01	0.05	0.05	2654.00	221.17	401.3	821.3	821.3	1,222.5
AC51A	0.	0.01	0.05	0.05	124.00	124.00	0.	141.2	141.2	141.2
AC51B	0.00820	0.01	0.05	0.05	8000.00	8000.00	208.4	0.	0.	208.4
AC51C	0.	0.01	0.05	0.05	454.00	50.44	0.	20.8	20.8	20.8
AC611	0.27630	0.01	0.05	0.05	8000.00	8000.00	7,021.3	0.	0.	7,021.3
AC612	0.00530	0.01	0.05	0.05	207.00	207.00	3.5	17.4	17.4	20.9
AC61A	0.00430	0.01	0.05	0.05	554.00	554.00	7.6	249.9	249.9	257.5
AC611	0.07160	0.01	0.05	0.05	2110.00	703.33	719.8	211.1	211.1	931.0
AA112	0.00750	0.01	0.05	0.05	802.00	401.00	27.9	0.	0.	27.9

MITS PRUM.	CONDEMNATION RATE			UNIT COST			COST OF SPARES		
	LRU (FCL)	SRU (FCS)		LRU (UC)	SRU (UCSRU)		LRU (LRUS)	SRU (SRUS)	
LRU									
41113	0.13270	0.01	0.03	4109.00	684.83		2,598.0	0.	2,598.0
41114	0.14510	0.01	0.03	317.00	52.83		219.2	6.2	225.3
41121	0.73000	0.01	6.03	2067.00	516.75		575.2		575.2
41121	0.18410	0.01	0.05	55082.00	6120.22		46,852.8	76,872.1	123,724.9
41134	0.00640	0.01	0.03	8097.00	809.70		202.6	808.8	1,011.4
41134	0.	0.01	0.03	4500.00	375.00		0.	621.6	621.6
41134	0.01990	0.01	0.03	2583.00	516.60		201.0	201.0	401.9
41134	0.	0.01	0.03	1213.00	1213.00		0.	943.7	943.7
41134	0.	0.01	0.03	79.00	79.00		0.	8.5	8.5
41134	0.	0.01	0.03	901.00	901.00		0.	1,484.7	1,484.7
41144	0.59150	0.01	0.03	8549.00	2848.67		3,211.4	2,082.0	6,093.4
41211	0.07380	0.01	0.03	4503.00	901.00		0.	57.1	57.1
41211	0.	0.01	0.03	116.00	59.00		2.0	0.	2.0
41213	0.	0.01	0.03	300.00	150.00		0.	6.2	6.2
41214	0.13340	0.01	0.03	997.00	199.40		30.0	13.2	43.1
41214	0.01110	0.01	0.03	303.00	303.00		43.2	0.	43.2
41214	0.12180	0.01	0.03	3271.00	3271.00		1,380.6	0.	1,380.6
41214	0.09220	0.01	0.03	3229.00	3229.00		1,031.6	861.6	1,893.2
41214	0.	0.01	0.03	799.00	133.17		0.	149.0	169.0
41214	0.03490	0.01	0.03	5087.00	1271.75		947.8	0.	947.8
41214	0.04170	0.01	0.03	711.00	711.00		102.7	420.1	522.8
41214	0.03860	0.01	0.03	3703.00	335.59		1,459.8	7,477.1	8,936.9
41214	0.01940	0.01	0.03	700.00	700.00		90.0	0.	90.0
41214	0.	0.01	0.03	144.00	144.00		0.	55.4	55.4
41214	0.00470	0.01	0.03	1727.00	287.43		28.5	849.7	878.1
41214	0.00680	0.01	0.03	900.00	900.00		15.1	0.	15.1
41214	0.00710	0.01	0.03	185.00	185.00		3.2	8.0	11.2
41214	0.	0.01	0.03	951.00	237.75		0.	744.3	744.3
41214	0.06820	0.01	0.03	2206.00	367.67		1,092.3	5,009.2	6,101.6
41214	0.	0.01	0.03	791.00	791.00		0.	157.9	157.9
41213	0.03690	0.01	0.03	4305.00	4305.00		1,153.4	0.	1,153.4
41214	0.11470	0.01	0.03	1244.00	1244.00		1,036.0	0.	1,036.0
41214	0.	0.01	0.03	343.00	114.33		0.	10.0	10.0
41214	0.15820	0.01	0.03	5705.00	1141.00		2,150.1	5,017.9	7,168.1
41222	0.03120	0.01	0.03	923.00	923.00		68.6	0.	68.6
41222	0.01950	0.01	0.03	27085.00	2462.27		8,052.8	12,820.7	20,873.6
41222	0.00420	0.01	0.03	14525.00	968.33		930.1	2,864.3	3,794.4
41222	0.00660	0.01	0.03	17036.00	608.43		1,714.3	3,409.2	5,123.5
41222	0.00940	0.01	0.03	6116.00	2038.67		876.6	575.0	1,451.6
41222	0.	0.01	0.03	364.00	121.33		0.	46.2	46.2
41222	0.00070	0.01	0.03	10666.00	1777.67		113.8	1,924.6	2,038.2
41222	0.00890	0.01	0.03	9996.00	908.73		1,356.4	9,761.1	11,117.6
41222	0.01800	0.01	0.03	14676.00	489.20		4,027.8	3,602.6	7,630.4
41222	0.	0.01	0.03	155.00	155.00		0.	0.	0.
41222	0.	0.01	0.03	2579.00	859.67		0.	321.1	321.1
41222	0.04590	0.01	0.03	2579.00	2579.00		0.	1,592.5	1,592.5
41222	0.00870	0.01	0.03	430.00	547.48		2,319.0	6,954.7	9,273.8
41222	0.00420	0.01	0.03	1292.00	410.00		15.0	0.	15.0
41222	0.10740	0.01	0.03	53837.00	1492.00		21.8	0.	21.8
41222	0.	0.01	0.03	53837.00	53837.00		55,100.0	33,764.1	88,864.1

LNU	NRIS PROD.	CONFIRMATION RATE		UNIT COST		COST OF SPARES		TOTAL COST
		LNU (FCL)	SRU (FCS)	LNU (UC)	SRU (UCSRU)	LNU (LRUS)	SRU (SRUS)	
---	---	---	---	---	---	---	---	---
AM35A	0-00520	0-01	0-05	3853-00	1916-50	149-9	1-013-6	1-203-5
AM35A	0-07970	0-01	0-05	96841-00	3026-28	78-453-5	35-944-5	114-398-0
AM36M	0-00400	0-01	0-05	10980-00	1830-00	669-7	4-371-3	5-041-0
AM35A	0-06850	0-01	0-05	30751-00	1158-19	22-256-5	16-994-5	39-251-0
AM35M	0-05550	0-01	0-05	23228-00	1009-91	13-989-3	7-339-6	21-528-9
AM36A	0-08040	0-01	0-05	26399-00	1466-61	5-793-2	4-506-2	10-299-5
AM36M	0-01800	0-01	0-05	10499-00	437-66	514-5	642-6	1-157-1
TOTAL	4-01310	0-09	4-95	817859-00	128565-55	585-817-6	602-450-8	788-268-4
						TOTAL CSP (ALL BASES) --		788-268-4

# REPORT NO. 9 -- SUPPORT EQUIPMENT REQUIREMENTS/COST

OUTPUT FILE - NON-BASES COST DATA BANK (HISTORICAL)

ANNUAL PER BASE FLYING HOURS (PBPH) = 51840.00

NUMBER OF BASES (NB) = 1

AVAILABLE ANNUAL OPERATING HOURS (AOH) = 8760.00

TEST STATION										
SE ID	REPAIR TIME (TSDEM)	UTIL RATE (A)	# PER BASE (INSEB)	UNIT COST (UCSE)	SE COST/FASE (CPUSE)	INITIAL SE SPARES COST/FASE (CSESM)	COST OF INTERCONNECTION HARDWARE (IM)	COST OF SOFTWARE (CSU)	INVESTMENT COST (CSEI)	REPLACEMENT COST (CSE)
012M	0.27506	0.03669	1.03325	2	397,400.0	746,800.0	158,960.0	0.	933,760.0	31,792.0
0676C	0.04158	0.00676	0.21221	1	488,900.0	488,900.0	97,780.0	0.	586,680.0	19,556.0
0677C	0.21637	0.04621	0.96694	1	506,900.0	506,900.0	101,380.0	0.	608,280.0	20,276.0
0877C	0.02722	0.01013	0.33839	1	219,000.0	219,000.0	43,800.0	0.	262,800.0	8,760.0
0877J	0.00500	0.00272	0.03087	1	157,200.0	157,200.0	31,440.0	0.	188,640.0	6,288.0
133M	0.00160	0.00061	0.00656	1	295,200.0	295,200.0	59,040.0	0.	354,240.0	11,808.0
0675C	0.04785	0.00632	0.23562	1	316,700.0	316,700.0	63,360.0	0.	380,040.0	12,668.0
0675S	0.01653	0.00350	0.08921	1	698,400.0	698,400.0	139,680.0	0.	838,080.0	27,936.0
125A	0.01132	0.00112	0.00461	1	10,000.0	10,000.0	2,000.0	0.	12,000.0	400.0
0877C	0.08476	0.02191	0.48040	1	1,016,800.0	1,016,800.0	203,360.0	0.	1,220,160.0	40,672.0
0676M	0.01565	0.00368	0.03850	1	762,800.0	762,800.0	152,560.0	0.	915,360.0	30,512.0
0672A	0.03738	0.00706	0.27822	1	1,259,500.0	1,259,500.0	251,900.0	0.	1,511,400.0	50,380.0
1805S	0.05499	0.01306	0.28393	1	366,660.0	366,660.0	73,332.0	0.	439,992.0	14,666.4
0676C	0.23265	0.02276	1.09842	2	1,579,400.0	3,158,800.0	631,760.0	0.	3,790,560.0	126,352.0
0676S	0.16785	0.01922	0.61041	1	1,202,700.0	1,202,700.0	240,540.0	0.	1,443,240.0	48,108.0
TOTAL SHOP PECULIAR SE COSTS PER BASE.....					11,256,360.0	2,250,872.0	0.	0.	13,505,232.0	450,174.4

## OTHER BASE LEVEL COSTS:

COMMON SHOP WASE SE COST (BCA).....	78,000.0
EQUIPMENT INDEPENDENT BASE SE COST (BPA)....	388,000.0
PECULIAR AND COMMON FLIGHTLINE SE (FLA).....	1,080,000.0
TOTAL OTHER SE COSTS (OBSEC).....	1,546,000.0
TOTAL SE COST PER BASE.....	15,051,232.0
	450,174.4

USE -- TOTAL NON-RECURRING SE COST (ALL BASES)..... 15,051,232.0

USE -- TOTAL RECURRING SE COST PER YEAR (ALL BASES)..... 450,174.4

TOTAL RECURRING SE COST OVER USAGE PERIOD OF 15 YEARS..... 6,752,616.0

SUPPORT EQUIPMENT LIFE CYCLE COST..... 21,803,848.0



REPORT NO. 10 -- (COST OF TRAINING)

OUTPUT FILE - NON-BASE COST DATA BANK (HISTORICAL)

ANNUAL BASE FLYING HOURS (AFHH) = 25920.00  
NUMBER OF BASES (NB) = 1

AFSC	TTS COURSE LENGTH WEBS (MNR)	TTS COST/ AFSC (CITS)	OJT COST/ AFSC (COJT)	MANPOWER REQUIREMENTS (MU)	ANNUAL TURNOVER RATE (TRS)	TOTAL COST
43171	0.	0.	0.	2.39248	0.	0.
42153	0.	0.	1.307.0	2.39248	0.246	977.7
32251	0.	0.	5.433.0	36.55237	0.246	62,092.2
32231	27.30	16,939.5	0.	32.84623	0.592	366,481.3
32654	0.	0.	4.251.0	1.94804	0.246	2,589.2
32634	25.60	18,369.1	0.	1.94804	0.592	23,569.6
32650	0.	0.	3.825.0	2.84723	0.246	3,405.1
32630	29.10	20,297.8	0.	2.84723	0.592	38,066.1
46250	0.	0.	1.196.0	0.09368	0.246	35.0
46230	14.20	8,365.2	0.	0.09368	0.592	515.0
32850	0.	0.	2.327.0	8.35465	0.247	6,097.9
32830	33.90	20,777.5	0.	7.65839	0.621	109,422.7
32851	0.	0.	2.268.0	6.93726	0.254	5,045.3
32831	29.40	17,728.5	0.	6.63581	0.676	87,369.5
32551	0.	0.	2.816.0	5.11537	0.206	3,924.9
32531	19.00	12,085.3	0.	4.81030	0.306	21,664.5
53151	0.	0.	3.471.0	0.02604	0.246	26.1
32853	0.	0.	722.0	1.06968	0.246	241.5
32813	34.60	21,471.0	0.	0.91364	0.592	12,921.0
40451	0.	0.	4.379.0	0.14388	0.246	197.0
40431	22.20	18,061.1	0.	0.13922	0.592	1,656.2
42152	0.	0.	1.607.0	0.03637	0.246	3.3
32854	0.	0.	5.255.0	6.86211	0.289	12,825.5
32834	25.60	20,786.1	0.	6.40667	0.806	116,176.3
43151	0.	0.	4.938.0	0.99130	0.246	1,530.5

TOTAL COST PER BASE..... 876,833.5  
TOTAL CPT (ALL BASES)..... 876,833.5  
TOTAL RECURRING CPT (PIOP = 15 YEARS)..... 13,152,503.0  
NON-RECURRING INITIAL CARE COST (CPII)..... 0.  
LIFE CYCLE TRAINING COST..... 13,152,503.0

II.

DAIS THEORETICAL  
RELIABILITY, MAINTAINABILITY, COST MODEL  
BATCH OUTPUT REPORTS

REPORT NO. 1 -- SYSTEM COST

PIUP - 15 YEARS BASE YEAR - 1970

BASIS COST DATA BANK (THEORETICAL)

	COST	% LCC
MC - RECURRING		
CS - SUPPORT.....	88,255,498	36.09%
CO - OPERATION.....	0	0.00%
MC - NON-RECURRING		
CRB - R & D.....	6,210,000	2.54%
CSI - SYSTEM INVESTMENT.....	90,288,839	36.92%
COI - SUPPORT INVESTMENT.....	59,767,402	24.44%
CDP - DISPOSAL.....	0	0.00%
LCC - TOTALS.....	244,519,740	100.00%

REPORT NO. 2 -- EXPANDED NON-RECURRING COSTS (NRC)

BASIS COST DATA BANK (THEORETICAL)

	COST	% LCC
	----	----
NC - RECURRING.....	88,253,498	36.0932
WUP - 15 YEARS		
CDP - DISPOSAL.....	0	0. %
NRC - NON-RECURRING		
CND - R & D.....	6,210,000	2.5402
CSI - SYSTEM INVESTMENT		
CPP - PROCUREMENT.....	90,288,839	36.9252
CPM - PROJECT MANAGEMENT.....	0	0. %
COS - SUPPORT INVESTMENT		
CPII - MAINTENANCE TRAINING.....	0	0. %
CSP - SPARES.....	14,329,776	5.8602
CMT - SER. BEPOT.....	23,636,140	9.6662
CST - SER. FIELD.....	17,697,180	7.2382
CSM - SOFTWARE ACQUISITION.....	1,997,711	0.8172
CJG - MAINTENANCE MANUALS.....	2,094,931	0.8572
CMI - INVENTORY MANAGEMENT.....	11,663	0.0052
CFAI - FACILITIES.....	0	0. %
LCC - TOTALS.....	244,519,740	100.0002

REPORT NO. 3 -- EXPANDED RECURRING COSTS (MC)

BASIS COST DATA DATA (THEORETICAL)

	(COST)	% LCC
NUC - NON-RECURRING.....	156,266,262	43.9072
LUP - DISPOSAL.....		
MC - RECURRING (FOR PLUP = 15 YEARS)	0	0.
CU - OPERATION		
CFI - FUEL.....	0	0.
COP - PERSONNEL.....		
CAL - AIRCREW.....	0	0.
CUO - OTHER OPERATIONS.....	0	0.
CS - SUPPORT		
COM - ON-EQUIPMENT MAINTENANCE.....	13,553,961	5.3632
CSM - INTERMEDIATE MAINTENANCE.....	14,418,985	5.8972
CPT - TRAINING.....	8,330,479	3.5072
CSP - SPARES.....	10,363,530	4.2302
CDB - DEPOT MAINTENANCE.....	27,799,215	11.3692
CSE - SUPPORT EQUIPMENT.....	8,356,440	3.4172
CSW - SOFTWARE.....	2,562,000	1.0482
CJG - MAINTENANCE MANUALS.....	2,356,797	0.9442
CIM - INVENTORY MANAGEMENT.....	331,990	0.2182
LCC - TOTALS.....	264,519,740	100.0002

REPORT NO. 4 -- COSTS BY SUBSYSTEM CONTRIBUTIONS

RECURRING COST ELEMENTS (PER YEAR)

OUTPUT FILE - DATA COST DATA BANK (ECONOMETRIC)

ID	COM	CSM	3 RCV	CPT	3 RCV	CSP	3 RCV	CDR	3 RCV	CJG	3 RCV	CIM	3 RCV	TOTAL
AA110	142,895.8	79,680.7	60,888.5	1,035	68,534.6	56,018.5	8,784.1	462.6	417,264.8					
AA120	177,824.5	134,897.8	85,270.9	1,449	144,799.7	73,195.4	4,673.8	154.2	620,822.3					
AA130	22,604.4	52,150.9	20,783.6	0.353	25,473.3	55,460.6	8,079.9	616.8	185,169.6					
AA140	19,667.4	30,405.3	13,614.3	0.231	3,930.1	7,713.6	5,190.0	308.4	80,830.2					
AA150	5,902.1	2,397.9	1,249.1	0.021	623.4	15,393.1	3,356.6	308.4	27,280.5					
AA160	20,346.7	63,657.7	23,479.5	0.399	7,044.8	6,484.8	4,696.3	462.6	126,172.4					
AA170	5,228.9	2,041.4	1,882.2	0.032	244.6	721.8	5,218.5	616.8	15,994.2					
AA180	14,571.7	4,486.8	3,808.7	0.065	189.7	1,292.5	4,696.3	462.6	29,708.3					
AA190	2,206.3	2,934.3	1,444.5	0.025	309.0	1,622.6	1,608.0	154.2	10,279.0					
AA200	8,827.5	3,828.6	3,007.8	0.051	6,935.4	45,244.4	1,925.9	308.4	70,078.0					
AA210	39,858.9	6,802.7	13,013.2	0.221	575.2	12,987.0	1,608.0	154.2	22,682.4					
AA220	4,733.8	1,247.5	1,376.7	0.023	4,305.9	5,923.7	6,944.6	462.6	48,570.3					
AA230	12,249.0	12,133.4	6,501.2	0.110	122,517.6	735,628.2	2,630.0	154.2	1,042,120.0					
AA240	71,544.6	71,383.3	38,262.0	0.650	108.9	719.1	5,831.7	616.8	14,619.6					
AA250	5,078.3	673.9	1,590.9	0.027	47.3	3,797.3	994.9	154.2	8,147.8					
AA260	2,003.2	550.6	600.3	0.010	6,021.4	8,024.5	3,356.6	308.4	104,221.4					
AA270	20,066.9	47,490.5	18,953.1	0.322	1,808.6	1,235.9	2,947.8	308.4	32,428.1					
AA280	12,038.7	8,576.7	5,512.0	0.094	7,809.4	37,241.8	3,876.8	462.6	141,012.1					
AA290	2,328.2	51,027.2	20,263.7	0.344	7,225.2	21,806.5	2,743.4	308.4	54,222.1					
AA300	8,761.5	8,674.8	4,702.3	0.080	34,682.4	75,240.5	15,960.1	771.0	349,255.9					
AA310	70,338.5	89,454.4	56,788.9	0.465	5,259.1	13,235.6	2,334.6	308.4	85,858.4					
AA320	19,644.5	28,295.7	16,980.4	0.289	90,051.1	222,613.1	2,221.2	154.2	568,700.7					
AA330	85,442.1	105,720.0	64,648.7	1.099	1,531	3,784	0.003	0.003	9,666					

[illegible]

NON-RECURRING COST ELEMENTS

IO	CSP	CJG	CPP	TOTAL
	---	---	---	---
AA110	1,334,896	117,120	7,452,000	8,904,169
AA120	0.854	0.075	4,769	5,698
AA120	3,130,757	62,317	4,968,000	8,161,125
AC110	2,003	0.040	3,179	5,223
AC110	381,826	107,732	3,046,626	3,536,188
AC210	0.244	0.069	1,950	2,263
AC210	65,882	69,280	813,344	948,608
AC310	0.042	0.044	0.520	0.607
AC310	19,654	44,754	252,788	317,298
AC320	0.013	0.029	0.162	0.203
AC320	69,622	62,617	451,177	583,569
AC330	0.045	0.040	0.289	0.373
AC330	20,811	69,580	367,714	458,109
AC410	0.013	0.045	0.235	0.293
AC410	3,846	62,617	92,239	158,854
AC510	0.002	0.040	0.059	0.102
AC510	8,741	21,440	219,751	249,983
AC610	0.006	0.014	0.141	0.160
AC610	239,599	25,678	679,539	944,918
AI110	0.153	0.016	0.455	0.605
AI110	133,379	72,305	607,586	813,474
AI120	0.085	0.046	0.389	0.521
AI120	21,242	21,440	171,147	213,881
AM110	0.014	0.014	0.110	0.137
AM110	89,060	92,594	1,746,334	1,928,141
AM120	0.057	0.059	1,118	1,234
AM120	2,103,570	35,066	4,560,789	6,699,477
AM210	1,346	0.022	2,919	4,287
AM210	13,864	77,755	490,176	581,999
AM110	0.009	0.050	0.314	0.372
AM110	1,877	13,265	24,840	40,033
AM120	0.001	0.008	0.016	0.026
AM120	74,193	44,754	330,334	649,382
AM130	0.047	0.029	0.339	0.416
AM130	17,602	39,303	217,515	274,522
AM210	0.011	0.025	0.139	0.176
AM210	123,150	51,716	604,605	779,624
AM220	0.079	0.033	0.387	0.499
AM220	114,949	36,578	548,798	700,428
AM310	0.074	0.023	0.351	0.448
AM310	647,618	212,801	5,392,432	6,253,106
AM320	0.414	0.136	3,451	4,002
AM320	80,265	31,128	1,078,221	1,189,716
AM330	0.051	0.020	0.690	0.761
AM330	2,155,664	29,616	4,457,703	6,643,034
AM110	1,379	0.019	2,853	4,251
AM110	185,339	52,929	5,852,880	6,091,858
	0.119	0.034	3,745	3,898



ID	CSP1	C161	CPP	CIM1	TOTAL
	Z MRC	Z MRC	Z MRC	Z MRC	Z MRC
A2120	1,036,481	61,104	4,901,760	862	6,000,208
A2130	697,426	142,859	9,670,320	3,296	10,513,902
A2140	530,810	51,716	3,187,800	709	3,771,037
A2210	161,356	28,403	2,075,832	354	2,265,946
A2220	32,561	93,193	1,188,180	1,014	1,314,748
A2310	331,353	43,241	10,216,800	709	10,592,105
A2410	160,376	32,341	5,263,200	507	5,456,424
A2420	303,120	187,675	9,158,400	659	9,649,855
	0.194	0.120	5.861	0.000	6.175
14,290,702	2,094,931	90,288,839	11,663	106,686,137	
9.145	1.341	57.779	0.007	68.272	

OTHER NON-RECURRING COSTS -- CPT1.....	
COR1.....	23,636,140
CSE1.....	17,697,180
CSW1.....	1,997,711
CFI1.....	0
CRD.....	6,210,000
CPM.....	3,974
SPRTS.....	39,073
WRMC.....	0
TOTAL MRC.....	156,266,242
	100.000

## RECURRING COST ELEMENTS (PER YEAR)

ID	COM	CSM	CPT	CSP	CDR	CIM	TOTAL
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	% RCY	% RCY	% RCY	% RCY	% RCY	% RCY	
RA111	18,421.5	9,389.1	7,690.4	13,868.4	8,891.7	154.2	58,415.3
	0.313	0.160	0.131	0.236	0.151	0.003	0.993
RA112	53,553.7	25,116.7	22,011.3	7,570.6	9,743.3	154.2	118,149.7
	0.910	0.427	0.374	0.129	0.166	0.003	2.008
RA113	70,920.5	45,174.9	31,186.9	47,095.6	37,383.6	154.2	231,915.7
	1.205	0.768	0.530	0.800	0.635	0.003	3.942
RA121	177,824.5	134,897.8	85,276.9	144,799.7	73,195.4	154.2	616,148.5
	3.022	2.293	1.449	2.461	1.244	0.003	10.472
AC111	8,217.6	18,097.3	7,184.7	4,858.9	30,039.9	154.2	68,552.7
	0.140	0.308	0.122	0.083	0.511	0.003	1.165
AC112	8,731.0	21,566.8	8,592.5	7,321.4	16,966.8	154.2	63,532.7
	0.149	0.367	0.146	0.124	0.288	0.003	1.077
AC113	2,744.6	5,446.7	2,171.2	4,948.2	7,388.9	154.2	22,833.9
	0.047	0.093	0.037	0.084	0.126	0.003	0.388
AC114	2,891.2	7,040.0	2,835.2	8,344.7	1,045.0	154.2	22,330.4
	0.049	0.120	0.048	0.142	0.018	0.003	0.380
AC211	19,231.3	30,063.6	13,399.1	2,864.6	7,713.6	154.2	73,426.3
	0.327	0.511	0.228	0.049	0.131	0.003	1.248
AC212	431.1	341.7	215.3	1,063.6	0.	154.2	2,207.8
	0.007	0.006	0.004	0.018	0.	0.003	0.038
AC311	2,601.4	1,694.4	838.4	368.9	12,840.1	154.2	18,497.4
	0.044	0.029	0.014	0.006	0.218	0.003	0.314
AC312	1,500.7	703.5	410.7	304.4	2,553.0	154.2	5,426.5
	0.022	0.012	0.007	0.005	0.043	0.003	0.092
AC321	19,838.6	63,128.4	23,307.3	6,965.8	6,207.5	154.2	119,602.4
	0.337	1.073	0.396	0.118	0.106	0.003	2.033
AC322	228.5	133.6	77.3	57.4	130.3	154.2	781.4
	0.004	0.002	0.001	0.001	0.002	0.003	0.013
AC325	279.6	395.2	94.8	21.6	146.9	154.2	1,092.3
	0.005	0.007	0.002	0.000	0.007	0.003	0.019
AC331	870.6	438.9	335.4	35.3	0.	154.2	1,834.4
	0.015	0.007	0.006	0.001	0.	0.003	0.031
AC332	1,235.1	678.8	452.9	115.1	506.3	154.2	3,142.4
	0.021	0.012	0.008	0.002	0.009	0.003	0.053
AC333	1,490.0	661.7	581.9	66.2	0.	154.2	2,934.0
	0.025	0.011	0.010	0.001	0.	0.003	0.050
AC334	1,673.2	262.0	512.1	27.9	215.5	154.2	2,844.9
	0.028	0.004	0.009	0.000	0.004	0.003	0.048
AC411	8,245.2	3,088.4	2,444.4	131.5	564.5	154.2	14,630.1
	0.140	0.032	0.042	0.002	0.010	0.003	0.249
AC412	4,691.3	3,272.3	1,014.0	44.2	0.	154.2	7,176.0
	0.080	0.022	0.017	0.001	0.	0.003	0.122
AC413	1,635.3	324.1	330.3	14.0	726.0	154.2	3,205.9
	0.028	0.006	0.006	0.000	0.012	0.003	0.054
AC511	4,210.3	2,934.3	1,444.3	309.0	1,422.6	154.2	8,670.9
	0.037	0.030	0.025	0.005	0.028	0.003	0.147

Id	CUH	CSM	CMY	CSP	COR	CLM	TOTAL
	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY
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AC011	8,500.2	5,023.5	2,866.2	6,914.9	45,073.2	154.2	67,131.9
AC012	327.3	205.3	141.6	20.6	171.1	154.2	1,020.2
AM111	8,824.7	1,555.4	2,912.3	924.7	5,035.0	154.2	19,471.3
AM112	763.4	127.2	248.4	27.8	1,591.1	154.2	2,712.0
AM113	13,914.0	2,419.1	4,469.6	2,595.2	31,780.7	154.2	55,112.7
AM114	16,356.8	2,901.1	5,322.9	217.6	10,308.3	154.2	35,261.0
AM121	4,753.8	1,247.5	1,376.7	575.2	12,987.0	154.2	21,074.4
AM111	5,713.8	2,367.0	1,621.4	997.7	1,353.4	154.2	10,207.4
AM112	3,462.2	6,782.9	2,716.6	1,277.6	3,429.5	154.2	17,823.1
AM113	5,122.9	2,983.5	2,163.2	2,030.6	1,140.8	154.2	13,595.3
AM121	71,544.6	71,383.3	38,282.0	122,517.6	735,628.2	154.2	1,039,490.0
AM211	846.7	134.6	275.9	56.7	0.	154.2	1,468.1
AM212	846.7	40.2	242.0	2.0	88.7	154.2	1,573.9
AM213	422.8	24.1	121.1	6.3	0.	154.2	728.5
AM214	2,962.0	475.1	951.9	43.9	630.4	154.2	5,217.4
AM111	2,003.2	550.6	600.3	47.3	3,797.3	154.2	7,152.9
AM121	19,106.1	47,135.4	18,689.1	5,931.2	3,467.6	154.2	94,683.6
AM122	760.8	355.1	264.0	90.3	4,556.8	154.2	6,181.2
AM131	11,895.1	8,568.5	5,474.6	1,793.1	451.7	154.2	28,537.3
AM132	143.6	8.2	37.4	15.5	784.2	154.2	1,143.0
AM211	19,011.4	49,427.9	19,225.5	6,014.5	21,916.8	154.2	116,750.3
AM212	985.9	872.8	534.9	648.2	0.	154.2	3,196.1
AM213	1,531.3	726.5	503.4	1,146.6	13,325.0	154.2	17,186.9
AM221	8,309.7	8,345.1	4,503.8	7,162.2	19,073.2	154.2	47,546.1
AM222	451.8	351.7	198.6	63.0	2,733.3	154.2	3,932.6
AM311	28,009.9	51,546.2	20,271.4	22,564.7	44,243.4	154.2	146,639.7
	0.476	0.534	0.345	0.384	0.752	0.003	2.492

ID	LUM	CSM	CPT	CSF	CDR	CLM	TOTAL
	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY	Σ RCY
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AM312	15,541.5	21,939.1	12,757.6	4,489.7	5,465.3	154.2	60,347.3
AM313	27,904.3	34,129.5	21,189.3	6,055.2	17,093.3	154.2	106,525.8
AM314	3,554.0	1,003.3	1,718.7	1,524.5	8,438.5	154.2	16,393.3
AM315	1,348.9	986.2	852.0	48.4	0.	154.2	3,389.7
AM321	19,066.2	28,246.2	16,836.0	5,244.1	12,523.1	154.2	82,071.7
AM322	378.3	49.5	142.4	15.0	712.5	154.2	1,452.0
AM331	83,292.3	105,720.0	64,648.7	90,051.1	222,613.1	154.2	566,479.5
AT111	420.8	938.4	504.3	555.0	578.4	2,004.6	5,001.5
AT112	204.7	448.2	243.3	3,424.6	235.2	154.2	4,710.2
AT121	16,722.6	43,654.2	21,604.9	35,499.9	139,633.7	0.003	258,982.5
AT122	1,027.5	2,467.4	1,299.1	15,334.1	1,037.7	154.2	21,319.9
AT131	6,025.3	20,182.0	9,111.8	30,626.3	73,985.3	4,471.8	144,402.5
AT132	609.7	1,683.6	802.4	975.1	3,678.9	5,551.2	13,301.0
AT141	2,047.9	4,016.3	2,204.7	11,836.8	8,398.4	771.0	29,275.1
AT142	12,363.5	9,916.7	7,380.3	9,568.3	67,032.6	0.013	107,186.6
AT143	1,115.0	1,397.9	827.2	716.2	1,757.9	0.016	6,276.7
AT211	411.9	450.2	279.7	749.7	1,710.4	0.008	4,064.5
AT212	634.3	995.4	584.7	1,655.2	3,167.1	0.008	7,658.6
AT221	123.6	114.2	78.8	44.6	598.1	462.6	1,421.9
AT222	61.6	82.4	52.0	13.7	18.5	308.4	536.5
AT223	61.7	70.5	43.8	8.9	56.6	308.4	549.9
AT224	61.7	69.7	42.3	90.9	248.7	0.005	975.9
AT225	72.0	83.4	50.5	71.1	316.8	0.008	1,210.7
AT226	61.7	56.8	39.3	8.9	62.2	0.010	691.6
AT227	576.2	535.8	393.2	254.7	1,605.6	462.6	3,828.2
AT311	43,504.7	15,419.6	19,041.7	17,832.7	43,307.2	2,158.8	141,264.2
	0.739	0.262	0.124	0.103	0.736	0.037	2.401

[illegible]

# NON-RECURRING COST ELEMENTS

ID	CSPI	% NRC	CPP	% NRC	CMI	% NRC	TOTAL
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AA111	341,986	0.219	4,140,000	2.449		50	4,482,037
AA112	107,787	0.069	828,000	0.530		50	935,837
AA113	885,122	0.566	2,484,000	1.596		50	3,369,173
AA121	3,130,757	2.003	4,968,000	3.179		50	8,098,808
AC111	69,922	0.045	873,208	0.559		50	943,182
AC112	102,582	0.066	1,303,106	0.834		50	1,405,719
AC113	95,565	0.061	415,324	0.266		50	510,920
AC114	113,795	0.075	454,986	0.291		50	568,832
AC211	43,776	0.028	399,344	0.256		50	443,171
AC212	22,105	0.014	414,000	0.265		50	436,155
AC311	12,071	0.008	178,268	0.114		50	190,990
AC312	6,983	0.004	74,520	0.048		50	81,553
AC321	66,360	0.042	379,306	0.243		50	445,697
AC322	2,202	0.001	57,960	0.037		50	60,212
AC323	1,080	0.001	13,910	0.009		50	15,041
AC331	1,877	0.001	54,399	0.035		50	56,328
AC332	8,373	0.005	79,488	0.051		50	87,912
AC333	9,052	0.006	222,814	0.143		50	231,918
AC334	1,507	0.001	11,012	0.007		50	12,570
AC411	2,356	0.002	50,176	0.032		50	52,584
AC412	822	0.001	25,502	0.016		50	26,375
AC413	666	0.000	16,560	0.011		50	17,277
AC511	8,741	0.006	219,751	0.141		50	228,543
AC611	238,541	0.153	602,400	0.424		50	900,992
							0.577

ID	CSP1	CPP	CIM1	TOTAL
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AC012	1,057	17,139	50	18,248
	0.001	0.011	0.000	0.012
AI111	30,286	174,708	50	205,045
	0.019	0.112	0.000	0.131
AI112	6,936	66,405	50	71,392
	0.003	0.042	0.000	0.046
AI113	90,434	340,225	50	430,910
	0.058	0.218	0.000	0.276
AI114	7,522	26,247	50	33,821
	0.005	0.017	0.000	0.022
AI121	21,242	171,147	50	192,441
	0.014	0.110	0.000	0.123
AM111	24,842	662,400	50	687,292
	0.016	0.424	0.000	0.440
AM112	36,774	662,400	50	699,225
	0.024	0.424	0.000	0.447
AM113	27,443	421,534	50	449,029
	0.018	0.270	0.000	0.287
AM121	2,103,570	4,340,789	50	6,444,411
	1.346	2.919	0.000	4.265
AM211	5,784	373,014	50	378,849
	0.004	0.239	0.000	0.242
AM212	302	9,770	50	10,123
	0.000	0.006	0.000	0.006
AM213	491	24,840	50	25,362
	0.000	0.016	0.000	0.016
AM214	7,286	82,551	50	89,888
	0.005	0.053	0.000	0.058
AM111	1,877	24,840	50	26,768
	0.001	0.016	0.000	0.017
AM121	70,481	472,374	50	542,907
	0.045	0.302	0.000	0.347
AM122	3,718	57,960	50	61,720
	0.002	0.037	0.000	0.039
AM131	15,285	142,995	50	158,332
	0.010	0.042	0.000	0.101
AM132	2,316	74,320	50	76,887
	0.001	0.048	0.000	0.049
AM211	72,339	182,056	50	255,046
	0.046	0.117	0.000	0.163
AM212	8,277	65,694	50	73,823
	0.005	0.042	0.000	0.047
AM213	42,533	356,454	50	399,038
	0.027	0.228	0.000	0.255
AM221	111,926	472,374	50	584,351
	0.072	0.302	0.000	0.374
AM222	3,023	76,424	50	79,498
	0.002	0.049	0.000	0.051
AM311	404,810	2,242,638	50	2,649,498
	0.260	1.435	0.000	1.696
AM312	75,890	1,202,670	50	1,278,611
	0.047	0.770	0.000	0.817

ID	CSP1	CMP	CIM1	TOTAL
	Σ MNC	Σ MNC	Σ MNC	Σ MNC
AM313	117,853	1,410,580	50	1,528,434
AM314	47,043	506,404	50	553,448
AM315	2,021	30,139	50	32,210
AM321	77,615	1,042,417	50	1,120,283
AM322	2,650	35,604	50	38,304
AM331	2,155,664	4,457,703	50	6,613,418
A2111	75,667	3,484,800	459	3,561,126
A2112	109,671	2,568,080	50	2,677,802
A2121	664,143	2,898,000	811	3,562,954
A2122	372,338	2,003,760	50	2,376,149
A2131	645,701	7,666,560	1,470	8,313,732
A2132	51,724	2,003,760	1,825	2,057,310
A2141	249,231	2,550,240	253	2,799,725
A2142	265,118	455,400	304	720,822
A2143	16,460	182,160	152	198,772
A2211	51,967	491,832	152	543,952
A2212	109,388	1,584,000	202	1,693,591
A2221	3,924	91,080	152	95,156
A2222	992	36,432	101	37,526
A2223	564	36,432	101	37,098
A2224	6,265	414,000	152	420,417
A2225	7,412	491,832	202	499,447
A2226	564	36,432	152	37,149
A2227	12,635	81,922	152	94,759
A2311	331,353	10,216,800	709	10,548,863
A2411	140,376	5,263,200	507	5,424,083
	0.103	3.568	0.000	3.471





# REPORT NO. 6 -- RELIABILITY, MAINTAINABILITY, AND AVAILABILITY BY SUBSYSTEM

OUTPUT FILE - BASE COST DATA MARK (THEORETICAL)

SUBSYS	MEMBNA	MTTR		MTTR/KPH		MRM/KPH		AVAIL	SUBSYSTEM LCC CONTRIBUTION	
		FLIGHT	SHOP	FLIGHT	SHOP	FLIGHT	SHOP		FLIGHT	SHOP
AA110	37.40	5.186	2.707	138.669	72.190	270.038	127.662	0.87822	3,777,581.2	12,884,470.9
AA120	34.00	5.925	4.096	174.271	120.471	355.600	217.212	0.85159	4,661,191.3	14,910,680.1
AC110	51.00	1.884	2.412	36.934	47.297	45.746	88.897	0.96438	616,742.7	6,151,509.3
AC120	74.80	2.288	2.011	30.592	26.885	39.321	50.330	0.97032	509,851.9	1,949,043.0
AC130	404.60	2.475	0.958	6.612	2.169	7.324	3.692	0.99343	108,252.4	644,083.5
AC120	62.90	2.097	3.516	33.340	55.897	40.151	109.872	0.96724	524,324.3	2,464,209.5
AC130	328.10	2.335	0.660	7.116	2.011	10.546	3.241	0.99293	175,301.4	564,029.6
AC110	149.60	2.156	0.735	14.612	4.915	27.620	7.191	0.98579	358,228.6	330,654.4
AC110	647.70	2.030	1.514	3.134	2.338	4.449	6.368	0.99688	87,565.6	367,067.1
AC110	120.70	1.502	0.341	12.442	2.828	17.646	2.955	0.98271	241,255.7	1,821,956.6
AA110	56.10	1.131	0.372	55.807	4.634	80.711	7.089	0.94714	1,049,590.0	1,801,734.9
AA120	680.00	3.692	0.949	5.429	1.396	9.249	1.396	0.99460	124,875.4	459,225.3
AA110	113.90	1.883	1.218	16.535	10.690	24.495	19.822	0.98373	355,859.0	2,470,730.8
AA120	57.80	3.996	3.937	69.141	68.108	134.995	119.274	0.93535	1,877,587.8	21,397,935.3
AA120	1241.40	6.090	0.853	4.828	0.674	9.456	1.044	0.99520	176,412.8	662,667.8
AA110	1031.90	3.325	0.502	3.222	0.487	3.948	0.487	0.99679	40,671.0	114,480.8
AA120	62.90	2.125	2.515	33.781	39.988	39.814	77.910	0.96732	509,255.3	2,108,078.6
AA130	119.00	1.836	0.695	15.433	5.843	23.753	10.986	0.98480	312,344.4	564,120.3
AA120	54.40	1.400	2.325	29.405	42.745	40.908	82.474	0.97143	537,814.0	2,789,512.6
AA120	110.50	1.410	0.417	12.740	5.587	17.591	8.638	0.98740	219,156.4	1,377,715.3
AA130	37.40	5.235	2.881	141.313	77.025	158.045	146.108	0.87618	2,408,785.2	10,404,316.8
AA120	136.00	4.174	3.296	30.692	24.234	40.539	48.259	0.97022	538,877.1	2,321,499.8
AA130	52.50	3.945	3.392	122.136	105.004	165.127	179.605	0.89116	2,384,883.7	14,360,051.0
AA110	2041.70	2.074	2.308	1.016	1.130	1.270	2.155	0.99899	41,578.2	6,273,276.2
AA120	75.10	2.070	2.919	28.317	40.201	34.974	72.924	0.97244	530,473.5	10,293,362.8
AA130	168.30	1.912	3.361	11.358	19.969	13.568	34.358	0.98877	219,829.0	13,061,430.1
AA140	102.00	2.460	1.658	24.314	16.259	32.076	22.613	0.97626	506,640.5	5,713,825.9
AA120	1266.50	2.019	1.766	1.594	1.594	2.148	2.469	0.99841	54,468.6	2,440,030.6
AA120	1263.10	1.991	1.205	1.576	0.954	2.089	1.453	0.99843	107,209.6	1,467,244.1
AA110	40.80	2.037	0.545	49.924	13.167	84.353	23.724	0.95245	1,193,225.1	12,020,327.9
AA110	249.90	2.756	4.208	11.028	16.837	14.944	29.483	0.98909	232,404.5	6,393,883.8
AA120	103.70	2.590	3.654	24.976	35.236	34.503	58.689	0.97563	517,222.5	11,510,265.3

REPORT NO. 7

MANHOOR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - OASIS COST DATA NAME (THEORETICAL)

ANNUAL BASE FLYING HOURS (AMPH) = 25420.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LABOR DATE	DIRECT FLIGHTLINE (FMMH N/M)	TOTAL LABOR FLIGHTLINE (MURE N/M)	DIRECT MMH/FM SHOP (SMMH N/M)	TOTAL LABOR SHOP (MURS N/M)	TOTAL COST
5223	.....	7.026771	.....	.....	.....	.....	.....
	AA110	.....	0.	0.	0.0527	2387.724	23,535.2
	AA120	.....	0.	0.	0.09674	4179.219	41,193.6
	AA130	.....	0.	0.	0.00913	394.508	3,888.6
	AA140	.....	0.	0.	0.05117	2210.375	21,787.2
	AA150	.....	0.	0.	0.00043	27.318	269.3
	AA160	.....	0.	0.	0.00305	131.805	1,299.2
	AA170	.....	0.	0.	0.06908	2984.404	29,610.6
	TOTAL	.....	0.	0.	0.28508	12315.353	121,389.6

52251	.....	11.521771	.....	.....	.....	.....	.....
	AA110	.....	0.	0.	0.07259	3127.264	44,881.8
	AA120	.....	0.	0.	0.12047	5204.329	74,691.3
	AA130	.....	0.	0.	0.01069	461.808	6,627.8
	AA140	.....	0.	0.	0.06811	2942.271	42,226.8
	AA150	.....	0.	0.	0.00043	27.318	392.1
	AA160	.....	0.	0.	0.00359	241.365	3,404.0
	AA170	.....	0.	0.	0.07702	3327.474	47,755.1
	TOTAL	.....	0.	0.	0.33490	15331.829	220,038.9

# REPORT NO. 7

## MANPOWER COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - BASIS COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADS RATE (LLR M)	DIRECT MMH/FH (FMMH M/M)	TOTAL FLIGHTLINE (MURF M/M)	DIRECT MMH/FH SHOP (SMNH M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL LABOR	TOTAL COST
3263A		7.026771						
	AA110	0.	0.	0.	0.00923	398.919	398.919	3932.05
	AA120	0.	0.	0.	0.01818	785.376	785.376	7741.27
	AC110	0.	0.	0.	0.00489	211.206	211.206	2081.81
	AC210	0.	0.	0.	0.00359	155.058	155.058	1528.37
	AC310	0.	0.	0.	0.00335	15.113	15.113	148.96
	AC320	0.	0.	0.	0.00575	248.609	248.609	2450.49
	AC330	0.	0.	0.	0.00026	11.184	11.184	110.24
	AC410	0.	0.	0.	0.00064	27.693	27.693	272.96
	AC510	0.	0.	0.	0.00059	25.624	25.624	252.57
	AC610	0.	0.	0.	0.00193	83.487	83.487	822.91
	AA110	0.	0.	0.	0.00180	77.591	77.591	764.79
	AA120	0.	0.	0.	0.00009	4.049	4.049	39.91
	AN110	0.	0.	0.	0.00026	270.587	270.587	2687.12
	AN120	0.	0.	0.	0.00264	114.186	114.186	1125.50
	AN210	0.	0.	0.	0.00707	305.545	305.545	3011.68
	AN310	0.	0.	0.	0.00915	395.268	395.268	3896.07
	AZ140	0.	0.	0.	0.00028	11.969	11.969	117.98
	AZ210	0.	0.	0.	0.00020	8.622	8.622	84.99
	AZ220	0.	0.	0.	0.00019	8.028	8.028	79.13
	TOTAL	0.	0.	0.	0.07310	3158.112	3158.112	31128.79

REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL WAGE FLYING HOURS (ABFM) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LAZOR DEVOTED TO DIRECT LAZOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LAZOR RATE (CLR M)	DIRECT MMH/FH FLIGHTLINE (FMH M/M)	TOTAL LAZOR FLIGHTLINE (MURF M/M)	DIRECT MMH/FH SHOP (SMH M/M)	TOTAL LAZOR SHOP (MURS M/M)	TOTAL LAZOR	TOTAL COST
3265A		11,521771						
	AA110	0.	0.	0.	0.00923	398.919	398.919	5725.19
	AA120	0.	0.	0.	0.01818	785.376	785.376	11271.54
	AC110	0.	0.	0.	0.00489	211.206	211.206	3031.18
	AC210	0.	0.	0.	0.00359	155.058	155.058	2225.36
	AC310	0.	0.	0.	0.00035	15.113	15.113	216.89
	AC320	0.	0.	0.	0.00375	248.609	248.609	3567.99
	AC330	0.	0.	0.	0.00026	11.184	11.184	160.51
	AC410	0.	0.	0.	0.00064	27.693	27.693	397.44
	AC510	0.	0.	0.	0.00059	25.624	25.624	367.75
	AC610	0.	0.	0.	0.00193	83.487	83.487	1198.18
	AJ110	0.	0.	0.	0.00180	77.591	77.591	1113.56
	AM210	0.	0.	0.	0.00009	4.049	4.049	58.11
	AM320	0.	0.	0.	0.00626	270.587	270.587	3883.41
	AM110	0.	0.	0.	0.00264	114.186	114.186	1638.77
	AM210	0.	0.	0.	0.00707	305.545	305.545	4385.11
	AM310	0.	0.	0.	0.00915	395.268	395.268	5672.80
	AZ140	0.	0.	0.	0.00028	11.969	11.969	171.78
	AZ210	0.	0.	0.	0.00020	8.622	8.622	123.74
	AZ220	0.	0.	0.	0.00019	8.028	8.028	115.21
	TOTAL	0.	0.	0.	0.07310	3158.112	3158.112	45324.50

# REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - WALS COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00  
 NUMBER OF BASES (NB) = 1  
 PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED RATE (LLR M)	DIRECT MMH/FH FLIGHTLINE (FMMH M/M)	TOTAL LABOR FLIGHTLINE (MMH M/M)	DIRECT MMH/FH SHOP (SMMH M/M)	TOTAL LABOR SHOP (HURS M/M)	TOTAL LABOR	TOTAL COST
32630	.....	7.026771	0.	0.	0.00154	66.359	66.359	654.09
	A110	.....	0.	0.	0.00059	25.489	25.489	251.24
	A110	.....	0.	0.	0.00037	15.788	15.788	153.42
	A110	.....	0.	0.	0.00155	66.799	66.799	658.42
	A110	.....	0.	0.	0.00705	304.411	304.411	3000.50
	A110	.....	0.	0.	0.00015	6.626	6.626	65.31
	A110	.....	0.	0.	0.00020	8.735	8.735	86.10
	A110	.....	0.	0.	0.00374	161.580	161.580	1592.65
	A110	.....	0.	0.	0.00259	112.101	112.101	1104.95
	A110	.....	0.	0.	0.00375	161.851	161.851	1595.33
	A110	.....	0.	0.	0.00846	365.649	365.649	3604.11
	A110	.....	0.	0.	0.00624	10.301	10.301	101.54
	A110	.....	0.	0.	0.00694	299.989	299.989	2956.92
	A110	.....	0.	0.	0.00321	138.707	138.707	1367.20
	A110	.....	0.	0.	0.00216	93.160	93.160	918.25
	A110	.....	0.	0.	0.00001	0.609	0.609	6.00
	A110	.....	0.	0.	0.00261	112.595	112.595	1109.83
	A110	.....	0.	0.	0.00067	28.980	28.980	285.65
	A110	.....	0.	0.	0.00154	66.620	66.620	656.66
	TOTAL	.....	0.	0.	0.04757	2046.348	2046.348	20170.38

# REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00

NUMBER OF BASES (NB) = 3

PERCENT OF TOTAL LAUNCH DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLB M)	DIRECT FLIGHTTIME (FMMH M/M)	TOTAL FLIGHTTIME (TMMH M/M)	DIRECT MMH/TH SHOP (SMMH M/M)	TOTAL LABOR SHOP (TMMH M/M)	TOTAL COST
3650	.....	11.521771					
	A410	.....	0.	0.	0.00154	66.359	952.37
	A411	.....	0.	0.	0.00059	25.489	365.81
	A412	.....	0.	0.	0.00037	15.788	226.59
	A413	.....	0.	0.	0.00155	66.799	958.68
	A414	.....	0.	0.	0.00705	304.411	4368.83
	A415	.....	0.	0.	0.00030	12.780	183.42
	A416	.....	0.	0.	0.00020	8.735	125.37
	A417	.....	0.	0.	0.00374	161.580	2318.96
	A418	.....	0.	0.	0.00259	112.101	1608.84
	A419	.....	0.	0.	0.00375	161.851	2322.84
	A420	.....	0.	0.	0.00846	365.649	5247.70
	A421	.....	0.	0.	0.00024	10.301	147.84
	A422	.....	0.	0.	0.00694	299.989	4305.37
	A423	.....	0.	0.	0.00321	138.707	1990.69
	A424	.....	0.	0.	0.00216	93.160	1337.00
	A425	.....	0.	0.	0.00001	0.609	8.74
	A426	.....	0.	0.	0.00261	112.595	1615.94
	A427	.....	0.	0.	0.00067	28.980	415.91
	A428	.....	0.	0.	0.00154	66.620	956.12
	TOTAL	.....	0.	0.	0.04751	2052.502	29457.04

# REPORT NO. 7

MANHOOR COSTS PER YEAR BY ATSL'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (AMFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LAOUR DEVOTED TO DIRECT LAOUR (EFF) = 60.002

ATSL	SUBSYS	LOADED LAOUR RATE (LLR M)	DIRECT MMH/FH (FMH M/M)	TOTAL LAOUR FLIGHTLINE (MURF M/M)	DIRECT MMH/FH SHOP (SMH M/M)	TOTAL LAOUR SHOP (MURS M/M)	TOTAL LAOUR	TOTAL COST
SC01	A110	7.026771	0.	0.	0.00045	19.559	19.559	192.79
	AM320		0.	0.	0.02216	957.318	957.318	9436.07
	AM330		0.	0.	0.07460	3222.747	3222.747	31765.88
	A2110		0.	0.	0.00102	44.280	44.280	436.45
	A2120		0.	0.	0.03273	1413.757	1413.757	13935.08
	A2130		0.	0.	0.01439	621.603	621.603	6126.99
	A2140		0.	0.	0.00635	274.485	274.485	2703.54
	A2210		0.	0.	0.00087	37.796	37.796	372.54
	A2220		0.	0.	0.00050	21.561	21.561	212.53
	A2310		0.	0.	0.01038	448.295	448.295	4418.74
	A2410		0.	0.	0.01265	546.318	546.318	5384.93
	A2420		0.	0.	0.02345	1013.167	1013.167	9986.56
	TOTAL		0.	0.	0.19956	8620.886	8620.886	84974.10

SC01	A110	11.521771	0.	0.	0.00664	286.691	286.691	4,114.5
	A1120		0.	0.	0.00140	60.289	60.289	865.3
	AM110		0.	0.	0.00049	21.033	21.033	301.9
	AM320		0.	0.	0.02410	1041.088	1041.088	14,941.5
	AM330		0.	0.	0.10500	4536.187	4536.187	65,102.3
	A2110		0.	0.	0.00113	48.830	48.830	700.8
	A2120		0.	0.	0.04020	1736.664	1736.664	24,924.2
	A2130		0.	0.	0.01997	862.665	862.665	12,380.8
	A2140		0.	0.	0.01624	702.381	702.381	10,080.4
	A2210		0.	0.	0.00139	60.241	60.241	864.6
	A2220		0.	0.	0.00095	41.196	41.196	591.2
	A2310		0.	0.	0.01335	576.593	576.593	8,275.1
	A2410		0.	0.	0.01684	727.347	727.347	10,438.7
	A2420		0.	0.	0.03524	1522.181	1522.181	21,846.0
	TOTAL		0.	0.	0.28295	12223.586	12223.586	175,427.2



REPORT NO. 7

MANHOURLY COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - BASIS COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (AMFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADER LABOR RATE (LLR \$)	DIRECT MAN/PM FLIGHTLINE (PMH N)	TOTAL LABOR FLIGHTLINE (MURF N)	DIRECT MAN/PM SHOP (SMH N)	TOTAL LABOR SHOP (MURS N)	TOTAL LABOR	TOTAL COST
32632	AA110	7.026771	0.12602	5644.136	0.	0.	5644.136	53,661.6
	AA120		0.15545	6715.313	0.	0.	6715.313	66,191.3
	AA130		0.06239	2695.403	0.	0.	2695.403	26,568.0
	AA140		0.11110	4799.474	0.	0.	4799.474	47,307.3
	AA150		0.09796	4231.728	0.	0.	4231.728	41,711.2
	AA160		0.00083	35.792	0.	0.	35.792	352.8
	AA170		0.02320	1002.287	0.	0.	1002.287	9,879.3
	AA180		0.00909	392.630	0.	0.	392.630	3,870.1
	AA190		0.02235	965.647	0.	0.	965.647	9,518.2
	AA200		0.00144	62.046	0.	0.	62.046	611.6
	AA210		0.00142	61.262	0.	0.	61.262	603.8
	AA220		0.04502	1945.059	0.	0.	1945.059	19,172.0
	AA230		0.01023	441.854	0.	0.	441.854	4,355.2
	AA240		0.02305	995.641	0.	0.	995.641	9,813.8
	TOTAL		0.68934	29788.271	0.	0.	29788.271	293,616.2

32632	AA110	11.521771	0.13332	5759.472	0.	0.	5759.472	82,658.6
	AA120		0.16839	7274.372	0.	0.	7274.372	104,400.1
	AA130		0.06568	2837.410	0.	0.	2837.410	40,721.9
	AA140		0.03625	1566.058	0.	0.	1566.058	22,475.7
	AA150		0.05479	2366.771	0.	0.	2366.771	33,967.4
	AA160		0.00025	10.407	0.	0.	10.407	152.2
	AA170		0.00630	272.201	0.	0.	272.201	3,906.6
	AA180		0.00210	90.841	0.	0.	90.841	1,303.7
	AA190		0.00580	250.645	0.	0.	250.645	3,597.2
	AA200		0.00040	17.100	0.	0.	17.100	245.4
	AA210		0.00035	15.322	0.	0.	15.322	219.9
	AA220		0.02952	1275.459	0.	0.	1275.459	18,305.1
	AA230		0.00311	134.561	0.	0.	134.561	1,931.2
	AA240		0.00760	328.270	0.	0.	328.270	4,711.3
	TOTAL		0.51387	22199.090	0.	0.	22199.090	318,596.3

REPORT NO. 7

MANHOOR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL WAGE FLYING HOURS (AMFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT MMH/FH FLIGHTLINE (FMMH M/M)	TOTAL LABOR FLIGHTLINE (MURF M/M)	DIRECT MMH/FH SHOP (SMMH M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL LABOR	TOTAL COST
52850	AC110	7.026771	0.	0.	0.04160	1797.103	1797.103	17713.45
	AC210		0.	0.	0.02344	1012.821	1012.821	9943.14
	AC310		0.	0.	0.00132	57.153	57.153	583.36
	AC320		0.	0.	0.05397	2331.701	2331.701	22983.04
	AC330		0.	0.	0.00123	53.157	53.157	523.95
	AC410		0.	0.	0.00228	98.344	98.344	969.35
	AC510		0.	0.	0.00203	87.499	87.499	864.43
	AC610		0.	0.	0.00013	5.512	5.512	54.33
	AM120		0.	0.	0.03792	1638.193	1638.193	16147.30
	AM130		0.	0.	0.00514	222.146	222.146	2189.44
	AM210		0.	0.	0.03910	1688.977	1688.977	16447.86
	TOTAL		0.	0.	0.20817	8992.806	8992.806	88440.02

52850	AC110	11.521771	0.	0.	0.04710	2043.250	2043.250	29324.3
	AC210		0.	0.	0.02488	1161.422	1161.422	16068.5
	AC310		0.	0.	0.00237	102.335	102.335	1048.7
	AC320		0.	0.	0.05590	2414.770	2414.770	34654.2
	AC330		0.	0.	0.00201	86.869	86.869	1248.7
	AC410		0.	0.	0.00491	212.310	212.310	3047.0
	AC510		0.	0.	0.00234	101.001	101.001	1449.5
	AC610		0.	0.	0.00283	122.155	122.155	1753.1
	AM120		0.	0.	0.03999	1727.499	1727.499	24792.7
	AM130		0.	0.	0.00584	252.430	252.430	3022.8
	AM210		0.	0.	0.04211	1819.268	1819.268	267109.7
	TOTAL		0.	0.	0.23248	10043.307	10043.307	144139.2

# REPORT NO. 7

## MANHOOR (COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED)

UNIPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL WAGE FLYING HOURS (AWFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR DATE (LLR M)	DIRECT MAN/PM FLIGHTLINE (FMM M/M)	TOTAL LABOR FLIGHTLINE (MURR M/M)	DIRECT MAN/PM SHOP (SMNN M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL LABOR	TOTAL COST
32831		7.026771						
	AC510	0.00265	122.057	0.	0.	0.	122.057	1203.08
	AI110	0.05224	2236.873	0.	0.	0.	2236.873	22245.48
	AI120	0.00514	221.845	0.	0.	0.	221.845	2186.67
	AM110	0.00228	98.435	0.	0.	0.	98.435	970.06
	AM120	0.02361	1019.987	0.	0.	0.	1019.987	10053.78
	AM130	0.01375	594.083	0.	0.	0.	594.083	5855.74
	AM210	0.02573	1111.479	0.	0.	0.	1111.479	10955.59
	AM220	0.01095	473.050	0.	0.	0.	473.050	4662.74
	AM320	0.02922	1262.345	0.	0.	0.	1262.345	12442.65
	TOTAL	0.16576	7160.133	0.	0.	0.	7160.133	70575.79
32831		11.521771						
	AC510	0.00101	43.447	0.	0.	0.	43.447	423.54
	AI110	0.02134	921.816	0.	0.	0.	921.816	13229.69
	AI120	0.00353	152.280	0.	0.	0.	152.280	2185.49
	AM110	0.00128	55.378	0.	0.	0.	55.378	794.78
	AM120	0.00984	425.249	0.	0.	0.	425.249	4103.37
	AM130	0.00464	286.819	0.	0.	0.	286.819	4116.34
	AM210	0.00783	338.104	0.	0.	0.	338.104	4851.38
	AM220	0.00302	130.519	0.	0.	0.	130.519	1873.17
	AM320	0.00836	361.879	0.	0.	0.	361.879	5193.61
	TOTAL	0.06286	2715.511	0.	0.	0.	2715.511	38972.39

REPORT NO. 7

MANPOWER COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA MARK (THEORETICAL)

ANNUAL BASE FLYING HOURS (ABFM) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR DATE (LLB M)	DIRECT MAN/PM FLIGHTLINE (MNM M/M)	TOTAL LABOR FLIGHTLINE (MNM M/M)	DIRECT MAN/PM SHOP (MNM M/M)	TOTAL LABOR SHOP (MNM M/M)	TOTAL COST
12833		7.026771					
	AC110	.....	0.02944	1271.952	0.	1271.952	12337.36
	AC210	.....	0.02415	1043.095	0.	1043.095	10281.55
	AC310	.....	0.00326	140.939	0.	140.939	1389.21
	AC320	.....	0.02324	1004.156	0.	1004.156	9897.76
	AC330	.....	0.00651	281.057	0.	281.057	2770.31
	AC410	.....	0.01307	564.834	0.	564.834	5567.44
	AC610	.....	0.01079	445.930	0.	445.930	4392.57
	AM110	.....	0.01478	638.435	0.	638.435	6292.90
	TOTAL	.....	0.12524	5410.398	0.	5410.398	53329.05

12833		11.521771					
	AC110	.....	0.00846	365.464	0.	365.464	5245.05
	AC210	.....	0.00983	424.550	0.	424.550	6093.04
	AC310	.....	0.00307	132.739	0.	132.739	1905.04
	AC320	.....	0.01035	455.633	0.	455.633	6559.14
	AC330	.....	0.00282	121.871	0.	121.871	1749.07
	AC410	.....	0.01187	512.856	0.	512.856	7360.39
	AC610	.....	0.00354	153.115	0.	153.115	2197.47
	AM110	.....	0.00620	268.045	0.	268.045	3846.92
	TOTAL	.....	0.05635	2434.272	0.	2434.272	34936.11

REPORT NO. 7

MANHOUR COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - BASIS COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR RATE (LLR M)	DIRECT MAN/PM FLIGHTLINE (FMM M/M)	TOTAL LABOR FLIGHTLINE (MURF M/M)	DIRECT MAN/PM SHOP (SMH M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL COST
40431		7.026771	0.00467	201.719	0.00037	15.899	2145.009
AM210			0.00467	201.719	0.00037	15.899	2145.009
TOTAL			0.00467	201.719	0.00037	15.899	2145.009

40451		11.521771	0.00467	201.719	0.00068	29.205	3314.160
AM210			0.00467	201.719	0.00068	29.205	3314.160
TOTAL			0.00467	201.719	0.00068	29.205	3314.160

# REPORT NO. 7

## MANPOWER COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL WAGE FLYING HOURS (AWFH) = 25920.00

NUMBER OF BASES (NB) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED LABOR DATE (LLR M)	DIRECT MM/H FLIGHTLINE (MMH M/H)	TOTAL LABOR FLIGHTLINE (MMH M/H)	DIRECT MM/H SHOP (MMH M/H)	TOTAL LABOR SHOP (MMH M/H)	TOTAL LABOR	TOTAL COST
42153		11-521771						
AA110			0.00535	231.016	0.	0.	231.016	3315.49
AA120			0.00588	254.118	0.	0.	254.118	3647.04
AC110			0.00392	169.412	0.	0.	169.412	2431.36
AC210			0.00267	115.508	0.	0.	115.508	1637.74
AC310			0.00049	21.354	0.	0.	21.354	306.47
AC320			0.00318	137.361	0.	0.	137.361	1921.37
AC330			0.00041	26.333	0.	0.	26.333	377.93
AC410			0.00134	57.754	0.	0.	57.754	828.87
AC510			0.00031	13.340	0.	0.	13.340	191.45
AC610			0.00164	71.582	0.	0.	71.582	1027.33
AI110			0.00157	154.011	0.	0.	154.011	2210.33
AI120			0.00029	12.706	0.	0.	12.706	182.35
AM110			0.00176	75.856	0.	0.	75.856	1088.67
AM210			0.00346	149.481	0.	0.	149.481	2145.32
AM210			0.00016	6.850	0.	0.	6.850	98.30
AM210			0.00019	8.373	0.	0.	8.373	120.17
AM210			0.00318	137.361	0.	0.	137.361	1971.37
AM210			0.00168	72.605	0.	0.	72.605	1042.01
AM210			0.00368	158.824	0.	0.	158.824	2279.40
AM220			0.00181	78.190	0.	0.	78.190	1122.17
AM310			0.00535	231.016	0.	0.	231.016	3315.49
AM320			0.00147	63.529	0.	0.	63.529	911.76
AM330			0.00419	267.492	0.	0.	267.492	3838.99
A2110			0.00010	4.232	0.	0.	4.232	60.73
A2120			0.00274	118.194	0.	0.	118.194	1694.30
A2130			0.00119	51.337	0.	0.	51.337	736.78
A2140			0.00196	84.706	0.	0.	84.706	1215.68
A2210			0.00016	6.840	0.	0.	6.840	97.91
A2220			0.00014	6.840	0.	0.	6.840	97.91
A2310			0.00490	211.745	0.	0.	211.745	3039.20
A2410			0.00080	34.574	0.	0.	34.574	496.20
A2420			0.00193	83.317	0.	0.	83.317	1195.75
TOTAL			0.07215	3115.858	0.	0.	3115.858	46718.08

REPORT NO. 7

MANHOURLY COSTS PER YEAR BY AFSC'S AND SUBSYSTEMS SUPPORTED

OUTPUT FILE - DATA COST DATA BANK (THEORETICAL)

ANNUAL WAGE FLYING HOURS (AWFH) = 25920.00

NUMBER OF WAGES (NW) = 1

PERCENT OF TOTAL LABOR DEVOTED TO DIRECT LABOR (EFF) = 60.00%

AFSC	SUBSYS	LOADED RATE (LLR M)	DIRECT FLIGHTLINE (FMMH M/M)	TOTAL FLIGHTLINE (MURF M/M)	DIRECT MMH/FM SHOP (SMRH M/M)	TOTAL LABOR SHOP (MURS M/M)	TOTAL COST
43171	.....	11.2817/1					
AA110	.....	0.00535	231.016	0.	0.	231.016	3260.05
AA120	.....	0.00580	254.118	0.	0.	254.118	3586.05
AC110	.....	0.00392	149.412	0.	0.	149.412	2390.70
AL210	.....	0.00267	115.508	0.	0.	115.508	1630.02
AC310	.....	0.00049	21.354	0.	0.	21.354	301.35
AC320	.....	0.00318	137.361	0.	0.	137.361	1938.41
AC330	.....	0.00041	26.335	0.	0.	26.335	371.61
AC410	.....	0.00134	57.754	0.	0.	57.754	815.01
AC510	.....	0.00031	13.340	0.	0.	13.340	188.24
AC610	.....	0.00166	71.582	0.	0.	71.582	1010.15
AI110	.....	0.00357	154.011	0.	0.	154.011	2173.36
AI120	.....	0.00029	12.706	0.	0.	12.706	179.30
AI130	.....	0.00176	75.856	0.	0.	75.856	1070.46
AM220	.....	0.00346	149.481	0.	0.	149.481	2109.44
AM210	.....	0.00016	6.850	0.	0.	6.850	96.66
AM110	.....	0.00019	8.373	0.	0.	8.373	118.16
AM120	.....	0.00318	137.341	0.	0.	137.341	1938.41
AM130	.....	0.00168	72.405	0.	0.	72.405	1024.59
AM210	.....	0.00368	158.824	0.	0.	158.824	2241.28
AM220	.....	0.00181	78.190	0.	0.	78.190	1103.40
AM310	.....	0.00535	231.016	0.	0.	231.016	3260.05
AM320	.....	0.00147	63.529	0.	0.	63.529	896.51
AM330	.....	0.00619	267.492	0.	0.	267.492	3774.79
AZ110	.....	0.00010	4.232	0.	0.	4.232	59.72
AZ120	.....	0.00276	118.194	0.	0.	118.194	1667.93
AZ130	.....	0.00119	51.337	0.	0.	51.337	724.45
AZ140	.....	0.00196	84.706	0.	0.	84.706	1195.35
AZ210	.....	0.00016	6.822	0.	0.	6.822	96.27
AZ220	.....	0.00016	6.840	0.	0.	6.840	96.53
AZ310	.....	0.00490	211.765	0.	0.	211.765	2988.37
AZ410	.....	0.00080	34.574	0.	0.	34.574	487.90
AF420	.....	0.00193	83.317	0.	0.	83.317	1175.75
TOTAL	.....	0.07213	3115.858	0.	0.	3115.858	43970.28

REPORT NO. BA

SPARES REQUIREMENTS -- INVESTMENT

OUTPUT FILE - BASES COST DATA BANK (THEORETICAL)

NUMBER OF BASES (NU) = 1

ANNUAL PEAK BASE FLYING HOURS (PBFH) = 51840.00

EXPECTED BACK ORDER (EBO) = 0.10

DEPOT REPAIR CYCLE TIME (DRCT) = 0.17 YRS.  
BASE REPAIR CYCLE TIME (BRCT) = 0.13 YRS.

INU	SHOP SPARES		DEPOT SPARES		UNIT COST		COST OF LBU SPARES		COST OF SRU SPARES		TOTAL COST
	LBU (STEL)	SRU (STES)	LBU (RPL)	SRU (RPLS)	LBU (UC)	SRU (UCSRU)	SHOP (LBUSS)	DEPOT (LBUSS)	SHOP (SRUSS)	DEPOT (SRUSS)	
AA111	1	1	4,89852	12,17698	50000	3571.43	50,000.0	244,926.0	3,571.4	43,489.2	341,986.6
AA112	1	1	5,79966	42,76962	10000	909.09	10,000.0	57,996.6	909.1	38,881.5	107,787.2
AA113	1	1	22,34683	41,96090	30000	4285.71	30,000.0	471,004.8	4,285.7	179,832.4	885,122.9
AA121	1	1	43,79323	139,33516	60000	3157.89	60,000.0	2,627,593.6	3,157.9	460,005.8	3,130,757.3
AC111	1	1	3,08391	27,00964	10546	958.73	10,546.0	32,522.9	958.7	25,899.9	69,922.5
AC112	1	1	2,91447	30,22910	15738	1311.50	15,738.0	45,867.9	1,311.5	39,643.5	102,562.8
AC113	1	8	4,33781	5,71032	5016	5016.00	5,016.0	21,758.4	40,128.0	28,643.0	95,545.4
AC114	1	9	0,72862	9,98035	5495	5495.00	5,495.0	4,003.7	49,455.0	54,842.0	113,795.8
AC211	1	1	5,07182	50,08274	4823	283.71	4,823.0	24,661.4	283.7	14,208.8	43,778.8
AC212	2	1	0,142103	5000	50000.00	5000.00	10,000.0	0.	5,000.0	7,105.2	22,105.2
AC311	1	3	4,20980	2,40599	2153	289.13	2,153.0	9,063.7	807.4	647.2	12,671.3
AC312	1	3	1,87957	1,87957	900	900.00	900.0	1,691.6	2,700.0	1,691.6	6,983.2
AC321	1	1	4,05296	93,28670	4581	4581.00	4,581.0	18,566.6	458.1	42,734.6	66,340.3
AC322	2	1	0,12365	1,04415	700	350.00	1,400.0	86.6	350.0	365.5	2,202.0
AC323	4	1	0,71642	0,71642	168	168.00	672.0	120.0	168.0	120.0	1,080.0
AC331	2	1	0,15364	0,71641	657	328.50	1,314.0	0.	328.5	235.3	1,277.8
AC332	6	1	0,56892	960	960.00	960.00	5,760.0	1,107.5	960.0	546.2	8,373.6
AC333	3	2	0,14090	2491	2491.00	2491.00	8,073.0	0.	538.2	441.4	9,052.8
AC334	7	2	1,16680	1,16680	133	133.00	931.0	155.2	266.0	155.2	1,507.4
AC411	1	1	1,64632	8,94211	606	75.75	606.0	997.7	75.8	477.4	2,350.8
AC412	1	5	0,69503	0,69503	308	308.00	308.0	0.	220.0	294.6	822.6
AC511	1	6	2,33373	0,62659	2654	221.17	2,654.0	466.7	1,327.0	1,385.7	646.7
AC611	1	0	28,81769	0,55130	8000	8000.00	8,000.0	3,374.6	0.	0.	8,743.3
AC612	3	1	0,55845	2,00254	207	207.00	621.0	230,541.5	207.0	114.1	238,541.5
AI111	1	4	11,35286	2,00254	2110	703.33	2,110.0	23,954.5	2,813.3	1,408.5	30,286.3
AI112	5	0	1,15531	0,69503	802	401.00	4,010.0	926.6	0.	0.	4,936.6
AI113	1	0	21,05747	0,73940	4109	684.83	4,109.0	86,525.2	0.	0.	90,634.2
AI114	1	2	22,27440	0,73940	317	317.00	317.0	7,061.0	105.7	39.1	7,522.7
AI121	1	0	9,27715	0,63114	2067	516.75	2,067.0	19,175.9	0.	0.	21,242.9
AI122	1	6	0,84217	5,63223	8000	8000.00	8,000.0	6,737.4	4,800.0	5,304.9	24,842.3
AI123	1	7	2,19268	5,63223	8000	888.89	8,000.0	17,541.4	6,222.2	5,010.9	34,774.5
AI131	1	1	1,85124	9,15745	5091	1272.75	5,091.0	9,424.7	1,272.8	11,655.4	27,443.9
AI132	1	1	27,80902	83,42706	35082	6120.22	35,082.0	1,531,776.5	6,120.2	510,592.2	2,103,570.9
AM211	1	1	0,41996	0,41996	4505	901.00	4,505.0	378.4	901.0	378.4	5,786.4
AM212	2	0	0,55972	0,27952	118	59.00	236.0	66.0	0.	0.	302.0
AM213	1	1	0,10804	0,45010	300	150.00	300.0	150.0	150.0	41.9	491.9
AM214	6	1	1,01804	0,45010	997	199.40	5,982.0	1,015.0	199.4	89.8	7,286.1
AM215	1	0	5,25924	0,45010	300	300.00	300.0	0.	0.	0.	1,877.8
AM216	1	1	5,45432	96,30431	5705	335.59	5,705.0	31,116.9	335.6	33,325.5	70,483.0
AM22	1	0	4,30026	0,45010	700	700.00	700.0	3,010.2	0.	0.	3,710.2



LRU	SHOP SPARES		DEPOT SPARES		UNIT COST		COST OF LRU SPARES		COST OF SRU SPARES		TOTAL COST
	LRU (STKL)	SRU (STKS)	LRU (DPL)	SRU (DPLS)	LRU (UC)	SRU (UCSRU)	SHOP (LRUS)	DEPOT (LRUS)	SHOP (SRUS)	DEPOT (SRUS)	
AM131	1	1	0.95132	40.59826	1727	287.83	1,727.0	1,642.9	287.8	11,628.0	15,285.7
AM132	2	0	0.57349	0.	900	900.00	1,800.0	516.3	0.	0.	2,316.3
AM211	1	1	16.80689	88.91131	2206	367.67	2,206.0	37,076.0	367.7	32,489.7	72,339.4
AM212	1	4	0.	5.46462	791	791.00	791.0	0.	3,164.0	4,322.5	8,277.5
AM213	1	0	8.88001	0.	4305	4305.00	4,305.0	38,228.4	0.	0.	42,533.4
AM221	1	1	12.55983	29.29585	5705	1141.00	5,705.0	71,453.8	1,161.0	33,424.6	111,926.4
AM222	1	0	2.22579	0.	923	923.00	923.0	2,100.5	0.	0.	3,023.5
AM311	1	1	10.46712	38.07906	27085	2462.27	27,085.0	283,501.9	2,462.3	93,761.0	406,810.2
AM312	1	1	2.44926	23.56835	14525	968.33	14,525.0	33,575.5	968.3	22,822.0	73,890.9
AM313	1	1	4.39018	41.77605	17036	608.43	17,036.0	76,791.2	608.4	25,417.7	117,853.3
AM314	1	3	5.03716	1.96403	6116	2038.67	6,116.0	30,807.3	6,004.0	4,004.0	47,063.3
AM315	4	2	0.65722	2.65722	364	121.33	1,456.0	0.	242.7	322.4	2,021.1
AM321	1	1	2.92929	50.39525	12592	547.48	12,592.0	36,885.6	547.5	27,590.4	77,615.5
AM322	5	0	1.16282	0.	430	430.00	2,150.0	500.0	0.	0.	2,650.0
AM331	1	1	34.78095	67.15398	51837	3364.81	51,837.0	1,872,501.9	3,364.8	225,960.4	2,155,666.2
AM311	3	2	0.11174	1.40458	22000	2000.00	66,000.0	2,458.3	4,000.0	3,209.2	75,667.5
AM312	2	1	0.04529	0.78938	28600	28600.00	57,200.0	1,295.3	28,400.0	22,576.3	109,671.6
AM321	1	1	13.92607	55.89245	35000	2500.00	35,000.0	487,412.4	2,500.0	139,231.1	864,143.5
AM322	8	3	0.20097	4.18491	24200	24200.00	193,600.0	6,883.5	72,600.0	101,274.9	372,338.4
AM331	1	1	10.03837	24.32829	48400	4400.00	48,400.0	485,837.2	4,400.0	107,044.5	645,701.6
AM332	1	3	0.97540	2.50041	24200	711.74	24,200.0	23,469.4	2,155.3	1,779.8	51,724.6
AM341	1	7	2.74502	6.04074	30800	10266.67	30,800.0	84,546.6	71,886.7	42,018.2	249,231.5
AM342	1	1	44.19142	11.04786	5500	1375.00	5,500.0	243,032.8	1,375.0	15,190.8	265,118.6
AM343	1	2	2.88905	1.59279	2200	2200.00	2,200.0	6,355.9	4,400.0	3,504.1	16,460.0
AM311	6	1	1.13403	0.61478	5940	5940.00	5,940.0	6,736.2	5,940.0	3,651.8	51,968.0
AM312	8	2	1.04397	1.78976	10000	5000.00	80,000.0	10,439.7	10,000.0	8,948.8	109,388.4
AM321	2	1	0.37219	0.19567	1100	1100.00	2,200.0	409.4	1,100.0	215.2	3,924.6
AM322	1	1	0.06089	0.19499	440	440.00	440.0	26.8	440.0	85.8	992.6
AM323	1	0	0.18609	0.09784	440	440.00	440.0	81.9	0.	43.0	564.9
AM324	1	0	0.16488	0.08826	5000	5000.00	5,000.0	824.4	0.	441.3	6,265.7
AM325	1	0	0.21004	0.11357	5940	1980.00	5,940.0	1,247.6	0.	224.9	7,412.5
AM326	1	0	0.18609	0.09784	440	440.00	440.0	81.9	0.	43.0	564.9
AM327	8	2	1.31018	1.45317	990	990.00	7,920.0	1,297.1	1,980.0	1,438.6	12,635.7
AM331	1	1	6.69310	27.17485	33000	2750.00	33,000.0	220,872.4	2,750.0	74,730.8	331,553.2
AM311	1	1	6.20724	16.81316	17000	2125.00	17,000.0	105,523.1	2,125.0	35,228.0	160,376.1
AM321	1	1	23.73350	33.22524	12000	184.62	12,000.0	28,802.0	184.6	6,133.9	303,120.5
TOTAL	146	126	475.01735	1273.90625	781471	178558.27	1,161,479.0	10,193,906.8	376,034.3	2,559,262.6	14,290,702.8
TOTAL ALL BASES.....											14,290,702.8
OTHER COSTS:											
SPARE PARTS (SPMTS).....											39,073.5
WAR RESERVE MATERIAL COST (WRMC).....											0.
TOTAL.....											39,073.5
TOTAL CSPI.....											14,329,776.3

REPORT NO. 88

SPARES REQUIREMENTS PER YEAR --- REPLACEMENT

OUTPUT FILE - BALS COST DATA BANK (THEORETICAL)

NUMBER OF BASES (NBS) = 1  
ANNUAL BASE FLYING HOURS (ABFH) = 25920.00

LRU	NBS PROB.	CONDEMNATION RATE			UNIT COST			COST OF SPARES		TOTAL COST
		LRU (FCL)	SRU (FCS)	LRU (LUC)	SRU (LUCSRU)	LRU (LHRS)	SRU (SRHRS)			
AA111	0.02120	0.01	0.05	5000.00	3571.43	7,346.3	5,522.1			13,868.4
AA112	0.02510	0.01	0.05	10000.00	909.09	1,739.4	5,831.1			7,570.6
AA113	0.09480	0.01	0.05	50000.00	4285.71	20,126.1	26,989.5			47,085.6
AA121	0.17230	0.01	0.05	60000.00	3157.89	78,812.0	65,987.7			144,799.7
AC111	0.01420	0.01	0.05	10546.00	958.73	975.5	3,883.5			4,858.9
AC112	0.01720	0.01	0.05	15736.00	1311.50	1,375.8	5,945.6			7,321.4
AC113	0.02540	0.01	0.05	5016.00	5016.00	632.6	4,295.4			4,948.2
AC114	0.00430	0.01	0.05	5495.00	5495.00	120.1	8,222.7			8,342.7
AC211	0.04390	0.01	0.05	4823.00	283.71	733.7	2,130.9			2,864.6
AC212	0.	0.01	0.05	5000.00	5000.00	0.	1,065.6			1,065.6
AC311	0.19710	0.01	0.05	2153.00	269.13	271.9	97.1			368.9
AC312	0.08800	0.01	0.05	900.00	900.00	50.7	253.7			304.4
AC321	0.02950	0.01	0.05	4581.00	4581.00	556.9	6,408.9			6,965.8
AC322	0.00090	0.01	0.05	700.00	350.00	2.6	54.8			57.4
AC323	0.00520	0.01	0.05	168.00	168.00	3.6	18.0			21.6
AC331	0.	0.01	0.05	657.00	328.50	0.	35.3			35.3
AC332	0.04380	0.01	0.05	960.00	960.00	33.2	81.9			115.1
AC333	0.	0.01	0.05	2691.00	269.10	0.	66.2			66.2
AC334	0.04430	0.01	0.05	133.00	133.00	4.7	23.3			27.9
AC411	0.02850	0.01	0.05	606.00	75.75	29.9	101.6			131.5
AC412	0.	0.01	0.05	308.00	44.00	0.	44.2			44.2
AC413	0.04040	0.01	0.05	200.00	200.00	14.0	0.			14.0
AC511	0.09530	0.01	0.05	2654.00	221.17	101.2	207.8			309.0
AC611	0.40250	0.01	0.05	8000.00	8000.00	6,914.9	0.			6,914.9
AC612	0.00780	0.01	0.05	207.00	207.00	3.5	17.1			20.6
AI111	0.07370	0.01	0.05	2110.00	703.33	718.5	211.2			929.7
AI112	0.00750	0.01	0.05	802.00	401.00	27.8	0.			27.8
AI113	0.13670	0.01	0.05	4109.00	684.83	2,595.2	0.			2,595.2
AI114	0.16460	0.01	0.05	317.00	52.83	211.8	5.9			217.6
AI121	0.73000	0.01	0.05	2067.00	516.75	575.2	0.			575.2
AI131	0.01130	0.01	0.05	8000.00	800.00	202.1	795.6			997.7
AM112	0.02890	0.01	0.05	8000.00	888.89	526.1	751.5			1,277.6
AM113	0.02440	0.01	0.05	5091.00	1272.75	282.7	1,748.0			2,030.6
AM121	0.18600	0.01	0.05	55082.00	6120.22	65,944.1	76,573.5			122,517.6
AM211	0.	0.01	0.05	4505.00	901.00	0.	56.7			56.7
AM212	0.08170	0.01	0.05	118.00	59.00	2.0	0.			2.0
AM213	0.	0.01	0.05	300.00	150.00	0.	6.3			6.3
AM214	0.14860	0.01	0.05	997.00	199.40	30.4	13.5			43.9
AM111	0.42800	0.01	0.05	300.00	300.00	47.5	0.			47.5
AM121	0.03970	0.01	0.05	5705.00	335.59	913.3	4,997.8			5,911.2
AM122	0.03130	0.01	0.05	700.00	700.00	90.3	0.			90.3
AM131	0.01510	0.01	0.05	1727.00	287.83	49.3	1,743.8			1,793.1





REPORT NO. 10 -- COST OF TRAINING

OUTPUT FILE - BASIS COST DATA BANK (THEORETICAL)

ANNUAL BASE FLYING HOURS (ABFH) = 25920.00  
NUMBER OF BASES (NB) = 1

AFSC	ITS COURSE LENGTH WEEKS (MUR)	ITS COST/ AFSC (CITS)	OJT COST/ AFSC (COJT)	MANPOWER REQUIREMENTS (MW)	ANNUAL FURNISHED RATE (FRS)	TOTAL COST
43171	0.	0.	0.	1.62784	0.	0.
42153	0.	0.	1,307.0	1.62784	0.246	663.2
32852	0.	0.	5,939.0	11,56203	0.246	21,469.8
32832	28.40	18,672.1	0.	15,51472	0.592	190,811.0
32251	0.	0.	5,433.0	7,98533	0.246	13,564.8
32231	28.50	17,489.4	0.	4,41425	0.592	73,890.1
32858	0.	0.	3,825.0	1,06901	0.246	1,278.3
32838	29.90	20,738.7	0.	1,06581	0.592	14,558.8
3285A	0.	0.	4,251.0	1,44485	0.246	2,184.2
3283A	25.40	18,369.1	0.	1,44485	0.592	19,901.3
32833	20.60	14,433.0	0.	2,81792	0.592	26,788.6
32853	0.	0.	72.0	1,26785	0.246	286.2
32850	0.	0.	2,327.0	5,23089	0.247	3,818.0
32830	30.10	18,881.1	0.	4,68375	0.421	60,813.4
32811	19.50	13,016.3	0.	3,72924	0.676	36,049.5
32851	0.	0.	2,268.0	1,41433	0.254	1,028.6
32851	0.	0.	7,870.0	6,36835	0.246	15,665.6
32831	39.10	24,017.5	0.	4,49004	0.592	71,030.4
40451	0.	0.	4,379.0	0.12027	0.246	144.7
40431	23.20	18,703.4	0.	0.11334	0.592	1,396.4

TOTAL COST PER BASE..... 555,365.3  
TOTAL CPT (ALL BASES)..... 555,365.3  
TOTAL RECURRING CPT (PIUP = 15 YEARS)..... 8,330,479.3  
NON-RECURRING INITIAL CABRE COST (CPT)..... 0.  
LIFE CYCLE TRAINING COST..... 8,330,479.3

III.  
NON-DAIS HISTORICAL DATA BANK  
EQUIPMENT IDENTIFICATION CROSS REFERENCE LIST

# NON-DAIS HISTORICAL DATA IDENTIFICATION CROSS REFERENCE LIST

*ID#	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AA110	-1		74G00	FORWARD LOOKING INFRARED DETECTING SET	3
AA110	-2		74G00	AN/AAS- 26	
AA111	-1	73.5	74GA0	INFRARED RECEIVER	14
AA112	-1	42.0	74GB0	POWER SUPPLY (FLIR)	11
AA113	-1	40.0	74GC0	OPTICAL SENSOR STABILIZATION POD	7
AA120	-1		74H00	LASER TARGET IDENTIFICATION SET	1
AA121	-1	40.0	74HA0	LASER/ELECTRO-OPTICS/GIMBAL POD	19
AA210	-1		74D00	WEAPONS CONTROL CIRCUITS	2
AA21A	-1	4.0	74DB0	WEAPONS RELEASE CIRCUITS	7
AA21B	-1	4.0	74DP0	MISSILE CONTROL SYSTEM	5
AA21B	-2		74DP0	AN/ARW- 77	
AA220	-1		74E00	WEAPONS RELEASE SYSTEM	1
AA22A	-1	10.6	74EA0	ARMAMENT STATION CONTROL UNIT	39
AA22A	-2		74EA0	C-8652/AWE	
AC110	-1		61A00	HF RADIO SET	6
AC110	-2		61A00	AN/ARC-123	
AC111	-1	13.0	61AA0	RECEIVER/TRANSMITTER (HF)	11
AC111	-2		61AA0	5821-00-842-3483 RT-822/ARC-123	
AC112	-1	23.0	61AB0	AMPLIFIER POWER SUPPLY	12
AC112	-2		61AB0	5821-00-842-3471 AM-4573/ARC-123	
AC113	-1	19.5	61BA0	ANTENNA COUPLER	1
AC113	-2		61BA0	5985-00-105-8954 CU-1402/ARC	
AC114	-1	13.5	61BC0	VARIABLE CAPACITOR	1
AC114	-2		61BC0	5821-00-932-6693 CB-17/ARC	
AC11A	-1	4.2	61AC0	CONTROL (HF)	6
AC11A	-2		61AC0	5821-00-842-3479 C-7073/ARC-123	
AC11B	-1	2.0	61BB0	ANTENNA COUPLER CONTROL	4
AC11B	-2		61BB0	5985-00-481-5009 C-6455/ARC	
AC210	-1		62A00	VHF-FM COMMUNICATIONS SET	3
AC210	-2		62A00	FM-622A	
AC211	-1	25.2	62AA0	RECEIVER/TRANSMITTER (VHF)	17
AC211	-2		62AA0	5821-00-933-8987 RT-FM-622A	
AC212	-1	2.4	62AE0	ANTENNA COUPLER	1
AC212	-2		62AE0	CU-1905/ARC	
AC21A	-1	2.0	62AD0	CONTROL (VHF)	1
AC21A	-2		62AD0	5821-00-014-6371 C-921/FM-622A	
AC310	-1		63510	DATA LINK	4
AC310	-2		63510	AN/ASW- 25	
AC311	-1	11.8	63511	CONVERTER/RECEIVER	8
AC311	-2		63511	CV-2230A/ASW-25	

\* ID# = LCCIM EQUIPMENT IDENTIFICATION NUMBER  
 SEQ = CARD SEQUENCE NUMBER; -1 AS INDICATED BY THESE COLUMN HEADINGS,  
 -2 CONTAINS THE NATIONAL STOCK NUMBER AND AN/ NOMENCLATURE.  
 WT = LRU WEIGHT IN POUNDS  
 WUC = WORK UNIT CODE  
 #LRUs = NUMBER OF LRUs IN THE SUBSYSTEM  
 #SRUs = NUMBER OF SRUs PER LRU

*ID	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AC312	-1	2.0	63515	MOUNT	1
AC312	-2		63515	MT-3751/ASW-25	
AC31A	-1	0.9	63512	CONTROL PANEL	1
AC31A	-2		63512	C-7100/ASW-25	
AC31B	-1	3.0	63513	DISCRETE DISPLAY TELEPANEL	1
AC31B	-2		63513	ID-1794/ASW-25	
AC320	-1		63A00	UHF RADIO SET	5
AC320	-2		63A00	AN/ARC- 51BX	
AC321	-1	27.7	63AA0	RECEIVER/TRANSMITTER (UHF)	10
AC321	-2		63AA0	5821-00-134-6239 RT-742B/ARC-51BX	
AC322	-1	1.0	63AE0	DIPLEXER	2
AC323	-1	1.1	63AL0	STANDING WAVE RATIO INDICATOR	1
AC323	-2		63AL0	5821-00-978-7867 ID-1003/ARC	
AC32A	-1	3.5	63AG0	CONTROL UNIT (UHF)	1
AC32A	-2		63AG0	5821-00-134-6237 C-8616/ARC	
AC32B	-1	1.0	63AH0	REMOTE CHANNEL INDICATOR	1
AC32B	-2		63AH0	5821-00-260-1819 ID-1752/ARC	
AC330	-1		63B00	UHF AUTOMATIC DIRECTION FINDING GROUP	5
AC330	-2		63B00	AN/ARA- 50	
AC331	-1	5.4	63BA0	RELAY AMPLIFIER	2
AC331	-2		63BA0	5826-00-059-2726 AM-3624/ARA-50	
AC332	-1	10.0	63BB0	ANTENNA (ADF)	1
AC332	-2		63BB0	5826-00-849-0055 AS-909/ARA-48	
AC333	-1	8.0	63BC0	RECEIVER (ADF)	10
AC333	-2		63BC0	5821-00-999-4590-MA R-1286/ARR-59	
AC334	-1	1.1	63BF0	MOUNT (ADF)	1
AC33A	-1	2.0	63BE0	CONTROL BOX (ADF)	1
AC33A	-2		63BE0	5821-00-400-5934 C-1457A/ARR-40	
AC410	-1		64A00	INTERCOM SET	3
AC410	-2		64A00	AN/AIC- 26	
AC411	-1	4.0	64AA0	INTERCOM SET CONTROL	8
AC411	-2		64AA0	5831-00-179-3948 C-8187/AIC-26	
AC412	-1	2.4	64AC0	STATION INTERCOM	7
AC412	-2		64AC0	5831-00-880-2833 C-6624/AIC-26	
AC413	-1	2.6	64AG0	AUDIO RELAY ASSEMBLY	1
AC510	-1		65A00	IFF TRANSPONDER	4
AC510	-2		65A00	AN/APX- 72	
AC511	-1	15.0	65AA0	RECEIVER/TRANSMITTER (IFF)	12
AC511	-2		65AA0	5895-00-160-2198 RT-859/APX-72	
AC51A	-1	7.0	65AB0	IFF CONTROL UNIT	1
AC51A	-2		65AB0	5895-00-782-0844 C-680P/APX	
AC51B	-1	10.0	65AD0	MARK XII COMPUTER	1
AC51B	-2		65AD0	KIT-1A/TSEC	
AC51C	-1	4.0	65AF0	IFF TRANSPONDER TESTER	9
AC51C	-2		65AF0	5895-00-895-4446 TS-1843A/APX	
AC610	-1		69A00	SPEECH SECURITY SYSTEM	3
AC611	-1	15.0	69AA0	CODER/DECODER	1
AC611	-2		69AA0	KY-28/TSEC	
AC612	-1	5.0	69AC0	RELAY	1
AC612	-2		69AC0	5821-00-970-6116 RE-978/ARC	



*ID#	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AC61A	-1	2.0	69ABG	CONTROL (TSEC)	1
AC61A	-2		69ABG	5821-00-400-5934 C-7990/ARC	
AI110	-1		51AGG	FLIGHT INSTRUMENTS	4
AI111	-1	2.0	51AAG	AIRCRAFT SYSTEMS INSTRUMENTS	3
AI112	-1	1.0	51ABG	COUNTING ACCELEROMETER	2
AI113	-1	2.0	51ADG	APPROACH ATTITUDE INDICATING SYSTEM	6
AI114	-1	3.0	51AEG	PITOT STATIC SYSTEM	6
AI120	-1		51BGG	NAVIGATION INSTRUMENTS	1
AI121	-1	4.0	51BAG	REMOTE STANDBY ATTITUDE INDICATING SYSTEM	4
AM120	-2		51BAQ	6610-00-225-7680	
AM120	-1		76LGG	INFRARED TAIL WARNING	1
AM120	-2		76LGG	AN/AAQ- 4	
AM121	-1	40.8	76LAG	SEARCH TRACK SCANNER	9
AM121	-2		76LAG	5865-00-489-9812	
AM130	-1		76FGG	HOMING & WARNING ECM SYSTEM	6
AM130	-2		76FGG	AN/APR- 36	
AM13A	-1	25.0	76FAG	PULSE ANALYZER	10
AM13A	-2		76FAG	5865-00-119-8315	
AM13B	-1	8.0	76FCG	AFT & FORWARD PREAMPLIFIER	12
AM13C	-1	4.0	76FEG	RADAR SET CONTROL	5
AM13C	-2		76FEG	5865-00-444-5157	
AM13D	-1	4.0	76FFG	RHAW INDICATOR PANEL	1
AM13D	-2		76FFG	5865-00-471-1553	
AM13E	-1	4.0	76FGG	AZIMUTH INDICATOR	1
AM13E	-2		76FGG	5865-00-111-8215	
AM13F	-1	2.0	76FKG	THREAT LIGHT ASSEMBLY	1
AM140	-1		76GGG	WARNING ECM SYSTEM	1
AM140	-2		76GGG	AN/APR- 37	
AM14A	-1	15.0	76GAG	RECEIVER	3
AM14A	-2		76GAG	5865-00-411-1685 R-1606/APR-37	
AM210	-1		77AGG	STRIKE CAMERA SYSTEM	4
AM210	-2		77AGG	KB-18A	
AM211	-1	18.8	77AAG	STRIKE CAMERA	5
AM211	-2		77AAG	6720-00-181-0990	
AM212	-1	2.0	77ABG	MOUNT	2
AM213	-1	2.0	77ACG	CAMERA BOX	2
AM214	-1	5.2	77AEG	CAMERA CONTROL, ELECTRICAL	5
AM214	-2		77AEG	6760-00-052-7996	
AN110	-1		71AGG	HEADING MODE SYSTEM	6
AN111	-2		71ADG	6615-00-877-9343 TRU-2A/A	
AN111	-1	4.0	71ADG	RATE GYRO TRANSMITTER	1
AN11A	-1	12.0	71ABG	HORIZONTAL SITUATION INDICATOR	1
AN11A	-2		71ABG	6610-00-168-0272 AQU-6/A	
AN11B	-1	13.0	71ACG	ATTITUDE DIRECTOR INDICATOR	1
AN11B	-2		71ACG	6610-00-160-0052 ARU-21/A	
AN11C	-1	1.0	71AEG	RELAY AMPLIFIER	6
AN11D	-1	8.0	71AFG	FLIGHT DIRECTOR COMPUTER	4
AN11D	-2	8.0	71AFG	6610-00-433-5227 CPU-80/A	
AN11E	-1	2.0	71AHG	MODE SELECT SWITCH ASSEMBLY	1
AN120	-1		71BGG	TACAN SET	3

*ID#	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AN120	-2		71B00	RECEIVER/TRANSMITTER (TACAN)	17
AN121	-1	43.3	71BA0	5826-00-884-0914	
AN121	-2		71BA0	RT-893/ARN-52	
AN122	-1	2.3	71BD0	ANTENNA SWITCH	1
AN122	-2		71BD0	SA-521/A	
AN12A	-1	2.0	71BC0	RADIO CONTROL	1
AN12A	-2		71BC0	5826-00-511-9051	
AN130	-1		71C00	C-7893/ARN-52	
AN130	-2		71C00	INSTRUMENT LANDING SYSTEM	4
AN131	-1	8.6	71CA0	AN/ARN- 58A	
AN131	-2		71CA0	RADIO MARKER BEACON & GLIDESLOPE RECEIVER	6
AN132	-1	4.0	71CD0	5826-00-226-6030	
AN132	-2		71CD0	R-844A/ARN-58A	1
AN13A	-1	2.0	71CC0	ANTENNA	
AN13A	-2		71CC0	AT-536/ARN	1
AN13B	-1	7.6	71CF0	CONTROL BOX (ILS)	
AN13B	-2		71CF0	5826-00-822-9214	
AN210	-1		72A00	C-3491/ARN-58	4
AN210	-2		72A00	RADIO LOCALIZER RECEIVER	
AN211	-1	4.5	72AA0	5826-00-706-1389	
AN211	-2		72AA0	R-843A/ARN-58	5
AN212	-1	3.0	72AB0	RADAR ALTITUDE SET	
AN212	-2		72AB0	AN/APN-141	6
AN213	-1	0.2	72AC0	RECEIVER/TRANSMITTER (ALT)	
AN213	-2		72AC0	5841-00-900-8080	
AN21A	-1	2.0	72AE0	RT-601B/APN-141	1
AN21A	-2		72AE0	ANTENNA SWITCHING UNIT	
AN21B	-1	2.0	72AH0	5841-00-900-8079	
AN21B	-2		72AH0	SA-791A/APN-141	1
AN220	-1		72B00	5841-00-134-6505	
AN220	-2		72B00	AS-1233/APN-141	1
AN221	-1	4.4	72BA0	HEIGHT INDICATOR	
AN221	-2		72BA0	5841-00-927-4103	
AN222	-1	0.3	72BD0	ID-1687/APN-141	3
AN222	-2		72BD0	LINEARIZER COUPLER	
AN310	-1		73A00	5841-00-110-6262	
AN310	-2		73A00	CU-1464/APN-141	2
AN311	-1	42.8	73AA0	RADAR BEACON SET	
AN311	-2		73AA0	AN/APN-154	5
AN312	-1	37.0	73AB0	RECEIVER/TRANSMITTER (BEACON)	
AN312	-2		73AB0	5826-00-884-0914	
AN313	-1	42.0	73AC0	RT-763/APN-154	1
AN313	-2		73AC0	ANTENNA	
AN314	-1	40.9	73AJ0	AS-1739A/APN-154	11
AN314	-2		73AJ0	FORWARD LOOKING RADAR	
AN315	-1	4.7	73AK0	AN/APQ-126	11
AN315	-2		73AK0	ANTENNA/RECEIVER	
AN31A	-1	5.1	73AD0	5841-00-001-7066	
AN31A	-2		73AD0	AS-2272/APQ-126	15
				RADAR TRANSMITTER	
				5841-00-001-7075	
				T-1091/APQ-126	28
				POWER SUPPLY PROGRAMMER	
				5841-00-001-7088	
				PP-6130/APQ-126	3
				RADAR SET MOUNT	
				5841-00-109-6083	
				MT-4043/APQ-126	3
				BLOWER & DUCT ASSEMBLY	
				4140-00-177-0454	
				HD-821/A	6
				AIR NAVIGATION COMPUTER	
				5841-00-156-7356	
				CP-954/APQ-126	

*ID#	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AN31B	-1	20.5	73AEO	AIR NAVIGATION MULTIPLE INDICATOR	11
AN31B	-2		73AEO	5841-00-001-7091 IP-952/APQ-126	
AN31C	-1	27.3	73AFO	SWEEP GENERATOR	30
AN31C	-2		73AFO	5841-00-480-5938 SG-811/APQ-126	
AN31D	-1	1.0	73AHO	RADAR FAULT LOCATOR	1
AN31D	-2		73AHO	5841-00-135-8151 MX-8175/APQ-126	
AN31E	-1	3.1	73ALO	CONTROL SET (FLR)	3
AN31E	-2		73ALO	5841-00-442-1578 C-8255/APQ-126	
AN31F	-1	3.1	73AMO	RADAR SET CONTROL (FLR)	1
AN31F	-2		73AMO	5841-00-168-7827 C-8252/APQ-126	
AN320	-1		73COO	AIR DATA COMPUTER SYSTEM	3
AN321	-1	16.3	73CAC	AIR DATA COMPUTER	23
AN321	-2		73CAO	6610-00-335-4406-MA CP-953A/AJQ	
AN322	-1	3.0	73CHO	TOTAL TEMPERATURE PROBE	1
AN32A	-1	3.0	73CJC	TRUE AIRSPEED INDICATOR	1
AN32A	-2		73CJO	6610-00-491-7477	
AN330	-1		73FOO	INERTIAL MEASUREMENT SET	2
AN330	-2		73FOO	AN/ASN- 90	
AN331	-1	19.5	73FAC	INERTIAL MEASUREMENT UNIT	16
AN331	-2		73FAC	6605-00-022-7893 CN-1260/ASN-9C	
AN33A	-1	2.0	73FCO	CONTROL (IMS)	2
AN33A	-2		73FCO	6605-00-179-2690 C-7796/ASN-90	
AN340	-1		73BCO	TACTICAL BOMBING COMPUTER SYSTEM	2
AN340	-2		73BCO	AN/ASN- 91	
AN34A	-1	83.0	73BAO	TACTICAL COMPUTER	32
AN34A	-2		73BAC	6605-00-489-6679 CP-952/ASN-91	
AN34B	-1	5.5	73BBO	CONTROL (TBC)	6
AN34B	-2		73BBO	6605-00-133-7629 C-7831/ASN-91	
AN350	-1		73EOO	HEADS-UP DISPLAY SET	2
AN350	-2		73EOO	AN/AVQ- 7	
AN35A	-1	47.5	73EAC	HEADS-UP DISPLAY UNIT	27
AN35A	-2		73EAC	6605-00-488-9524 IP-938/AVQ-7	
AN35B	-1	24.5	73EBC	SIGNAL DATA PROCESSOR	23
AN35B	-2		73EBC	6605-00-150-6499 CP-951/AVQ-7	
AN360	-1		73GOO	PROJECTED MAP DISPLAY	4
AN360	-2		73GOO	AN/ASN- 99	
AN36A	-1	21.0	73GAC	DISPLAY UNIT	18
AN36A	-2		73GAC	6605-00-150-6498 ID-1665A/ASN-99	
AN36B	-1	18.7	73GBO	SIGNAL DATA CONVERTER	24
AN36B	-2		73GBO	6605-00-150-7072 CV-2622/ASN-99	

IV.  
DAIS THEORETICAL DATA BANK  
EQUIPMENT IDENTIFICATION CROSS REFERENCE LIST

# DAIS THEORETICAL DATA IDENTIFICATION CROSS REFERENCE LIST

#ID#	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AA110	-1		74G00	FORWARD LOOKING INFRARED DETECTING SET	3
AA111	-1	73.5	74GA0	INFRARED RECEIVER	14
AA112	-1	42.0	74GB0	POWER SUPPLY	11
AA113	-1	40.0	74GC0	OPTICAL SENSOR STABILIZATION POD	7
AA120	-1		74H00	LASER TARGET IDENTIFICATION SET	1
AA121	-1	40.0	74HA0	LASER/ELECTRO-OPTICS/GIMBAL POD	9
AC110	-1		61A00	HF RADIO SET	4
AC111	-1	13.0	61AA0	RECEIVER/TRANSMITTER (HF)	11
AC112	-1	23.0	61AB0	AMPLIFIER POWER SUPPLY	12
AC113	-1	19.5	61BA0	ANTENNA COUPLER (HF)	1
AC114	-1	13.5	61BC0	VARIABLE CAPACITOR	1
AC210	-1		62A00	VHF FM COMMUNICATIONS SET	2
AC211	-1	25.2	62AA0	RECEIVER/TRANSMITTER (VHF)	17
AC212	-1	2.4	62AE0	ANTENNA COUPLER (VHF)	1
AC310	-1		63S10	DATA LINK	2
AC311	-1	11.8	63S11	CONVERTER/RECEIVER	8
AC312	-1	2.0	63S15	MOUNT & ANTENNA	1
AC320	-1		63A00	UHF RADIO SET	3
AC321	-1	27.7	63AA0	RECEIVER/TRANSMITTER (UHF)	9
AC322	-1	1.0	63AE0	DIPLEXER	2
AC323	-1	1.1	63AL0	STANDING WAVE RATIO INDICATOR	1
AC330	-1		63B00	AUTOMATIC DIRECTION FINDING SET - UHF	4
AC331	-1	5.4	63BA0	RELAY AMPLIFIER	2
AC332	-1	10.0	63BB0	ANTENNA	1
AC333	-1	9.0	63BC0	RECEIVER	7
AC334	-1	1.1	63BF0	MOUNT	1
AC410	-1		64A00	INTERCOM SET	3
AC411	-1	4.0	64AA0	INTERCOM SET CONTROL	5
AC412	-1	2.4	64AC0	STATION INTERCOM	6
AC413	-1	2.6	64AC0	AUDIO RELAY ASSEMBLY	1
AC510	-1		65A00	IFF TRANSPONDER SET	1
AC511	-1	15.0	65AA0	RECEIVER/TRANSMITTER (IFF)	4
AC610	-1		59A00	SPEECH SECURITY SYSTEM	2
AC611	-1	15.0	69AA0	CODER/DECODER	1
AC612	-1	5.0	69AC0	RELAY	1
AI110	-1		51A00	FLIGHT INSTRUMENTS	4
AI111	-1	2.0	51AA0	AIRCRAFT SYSTEMS INSTRUMENTS	3
AI112	-1	1.0	51AB0	COUNTING ACCELEROMETER	2
AI113	-1	2.0	51AD0	APPROACH ATTITUDE INDICATING SYSTEM	4
AI114	-1	3.0	51AE0	PITOT STATIC SYSTEM	3

\* ID# = LCCIM EQUIPMENT IDENTIFICATION NUMBER  
 SEQ = CARD SEQUENCE NUMBER  
 WT = LRU WEIGHT IN POUNDS  
 WUC = WORK UNIT CODE  
 #LRUs = NUMBER OF LRUs IN THE SUBSYSTEM  
 #SRUs = NUMBER OF SRUs PER LRU

*ID#	SEQ	WT	WUC	EQUIPMENT NAME	#LRUs/ #SRUs
AZ142	-1	4.0	7WDBU	MAGNETIC TAPE TRANSPORT UNIT	4
AZ143	-1	2.0	7WDCU	CONTROL UNIT	1
AZ210	-1		7XE00	MULTIFUNCTION CONTROLS	2
AZ211	-1	2.0	7XEA0	INTEGRATED MULTIFUNCTION KEYBOARD	1
AZ212	-1	8.0	7XECU	MULTIFUNCTION CONTROL PANEL	2
AZ220	-1		7XF00	DEDICATED CONTROLS	7
AZ221	-1	25.0	7XFA0	POWER/START-UP PANEL	1
AZ222	-1	1.0	7XFB0	ARMAMENT PANEL	1
AZ223	-1	1.0	7XFCU	COMMUNICATIONS PANEL	1
AZ224	-1	2.0	7XFD0	ALPHA/NUMERIC ENTRY KEYBOARD	1
AZ225	-1	2.0	7XFEU	MASTER MODE PANEL	3
AZ226	-1	8.0	7XFF0	SENSOR CONTROLLER PANEL	1
AZ227	-1	6.0	7XFG0	SENSOR CONTROLLER UNIT	1
AZ310	-1		7YAG0	PROCESSOR	1
AZ311	-1	40.0	7YAA0	COMPUTER PROCESSOR	12
AZ410	-1		7ZAG0	BUS CONTROL INTERFACE UNIT	1
AZ411	-1	20.0	7ZAD0	BUS CONTROL INTERFACE UNIT	8
AZ420	-1		7ZBG0	REMOTE TERMINAL UNIT	1
AZ421	-1	10.0	7ZBA0	REMOTE TERMINAL UNIT	65

## V. COST ELEMENT DESCRIPTIONS AND DATA

This section has been designed to provide a detailed description of the costs and computations involved in comparing a DAIS configuration to a non-DAIS configuration. To accomplish this task, the section will provide the following information.

1. Detailed descriptions of each of the cost levels involved in life cycle cost (LCC) (categories, subcategories, and elements).
2. Mathematical formulas used to compute the LCC for each of the cost levels.
3. Special considerations (as required) involved in the computation of LCC for each of the cost levels.
4. Sources of data used in computing LCC for each of the cost levels.
5. A summary of the LCC computation for each of the cost levels.

The three subsections in this section address the cost categories that make up LCC: nonrecurring cost (NRC), recurring cost (RC), and system disposal cost (CDP).

### 5.1 NONRECURRING COSTS

The category of NRC is simply described as the one time costs normally associated with research and development (R&D) and acquisition which are directly attributable to the system being evaluated. Figure 5.1 details the DAIS and non-DAIS NRCs which are the sum of research and development cost (CRD), system investment cost (CSI), and support investment cost (COI).

The \$22,147,000 advantage is in favor of the non-DAIS approach. Although the difference is dominated by the subcategory cost of system investment (procurement), there are also significant differences within the subcategory of support investment cost. Specifically, there are decreases in the elements of initial spares and software acquisition costs. However, both are offset by the increase in the subcategory of R&D, the element of field and depot support equipment (SE) acquisition, and the element of maintenance manual acquisition.

The NRC elements of project management, initial maintenance training, and facilities are quantified as zero in Figure 5.1 and Section I of this report. Costs are expected in these areas, but are not definable at this point. A zero is required there for proper operation of the interactive RCM computer program.

Category	Subcategory	Element	Non-DAIS Cost (0000)	DAIS Cost (0000)	Cost Difference (0000)	% Difference
NRC-Non-Recurring	CRD-Research & Development					
		CSI-System Investment				
	COI-Support Investment	CRD-Procurement	5,340	6,210	+ 870	+16.3%
		CPM-Project Management	67,719	90,269	+22,570	+33.3%
			0	0	0	0.0%
	COI-Support Investment	CPTI-Maintenance Training	0	0	0	0.0%
		CBPI-Spares	16,742	14,336	-2,412	-14.4%
		CDRI-SE, Depot	22,176	23,836	+1,660	+8.6%
		CSEI-SE, Field	15,061	17,607	+2,546	+17.8%
		CSWI-Software Acquisition	6,317	1,997	-3,320	-52.4%
		CAGI-Maintenance Manuals	1,700	2,006	+ 326	+18.4%
		CIMM-Inventory Management	5	12	+ 7	+140.0%
CFAI-Facilities		0	0	0	0.0%	
Total NRC		124,119	166,266	+22,147	+18.6%	

Figure 5.1 - Expanded nonrecurring costs.



### 5.1.1 Cost of Research and Development (CRD)

The subcategory of R&D costs is difficult to quantify without actual data for the particular equipment being studied. Any method chosen to arrive at costs, other than reasonable estimates based on actual procurements, would be subject to legitimate criticism. This study postulates that "off-the-shelf" systems are available for both DAIS and non-DAIS configurations. This means no substantial R&D costs are required for either configuration during acquisition. Therefore, the cost values in this subcategory reflect only the requirements of integrating the avionics subsystems into the close-air-support (CAS) aircraft.

To be realistic, Reference 6 was consulted to give an aggregated value for the A-7D R&D costs (including test and evaluation) based on actual SPO selected acquisition report (SAR) data. The total A-7D R&D cost was adjusted to the procurement cost of the original A-7D avionics equipment, relative to the total aircraft procurement cost without considering spares. The avionics equipment share of the R&D cost for the A-7D was 20.6 percent, or \$48,500 per aircraft. The original A-7D avionics and total procurement costs were further adjusted to account for the additional scope and more complex avionics defined for both the DAIS and non-DAIS configurations.

Using the adjusted avionics procurement costs, the conventional avionics is found to be 28.5 percent of the total adjusted procurement cost and the DAIS avionics to be 31.8 percent of the total adjusted procurement cost. Assuming that (1) R&D costs increase proportional to procurement and (2) these costs can be prorated to avionics, the R&D per aircraft is \$74,170 for conventional avionics, \$86,250 for DAIS. It must be noted that these estimates are based on the A-7D total procurement of 411 aircraft as opposed to the 72 aircraft assumed for this study. Therefore, these costs probably understate an actual 72 aircraft buy. This study assumes that no appreciable software RDT&E cost was included in these A-7D cost estimates. Therefore, the direct estimate of the comparable R&D software cost is \$5,317,000 for conventional avionics, and \$1,998,000 for DAIS. These estimates have been included in the software acquisition cost data.

### 5.1.2 System Investment Costs

The subcategory of system investment is defined as hardware procurement costs and program/project management costs. Only the element of procurement costs has been quantified in this study and the element of program management cost was set to zero. The non-DAIS configuration has a \$22,000,000 advantage over the DAIS configuration in hardware procurement costs.

#### 5.1.2.1 Cost of Procurement

The cost of procurement element covers production hardware only. This cost element includes unit cost, installation cost, and integration cost. The basic cost equation is:

$CPP = NB \cdot NACB \cdot \text{SUM}(M) (CPINT(M) + CINST(M))*$	
CPP	Cost of procurement.
NB	Number of bases.
NACB	Number of aircraft per base.
CPINT(M)	Cost of production and integration per subsystem.
CINST(M)	Cost of installation per subsystem.
M	Number of subsystems.

Procurement costs of the individual avionics subsystems were obtained by aggregating the unit costs of the appropriate line replaceable units (LRUs) after adding a five percent cost of installation factor and a 10 percent integration factor. This integration cost factor accounts for interconnection cabling, provision for aircraft interface, and the subsystem level testing necessary to make the system operational. The integration factor was applied only once to redundant LRUs. The installation factor was applied to all LRUs that require mounting. The values used for the integration and installation factors are representative of those that could be used in government and industry estimating procedures. The specific subsystem costs obtained are presented in Table 5.1.

#### 5.1.2.2 Cost of Program/Project Management

The primary purpose of this cost element is to account for government management costs. It also includes, however, those contractor management costs not included in cost of R&D, cost of procurement (hardware acquisition), or cost of support investment. Program/project management includes technical and administrative planning, organizing, directing, coordinating, controlling, and approving actions designed to accomplish overall program objectives during the acquisition phase of the equipment life cycle. Examples of these activities are configuration management, cost/schedule management, data management, contract management liaison, value engineering, quality assurance, and integrated logistics support management. The value of this cost element was set to zero in the study.

\*Note that normally subscripted variables are notated in parentheses for consistency with the computer printouts in this volume.

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DIGITAL AVIONICS INFORMATION SYSTEM (DAIS). VOLUME II. IMPACT 0--ETC(U)

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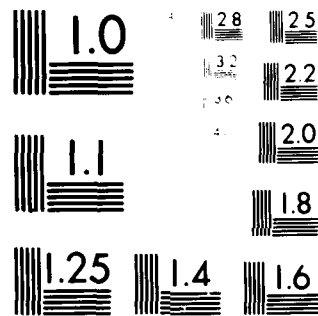
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Table 5.1 - Avionics Subsystem Procurement Cost.

		SUBSYSTEM UNIT COST		PROCUREMENT COST	
ID No.	Subsystem Name	Conventional	DAIS	Conventional	DAIS
NAVIGATION:					
AC330	Automatic Direction Finder	4,995	4,441	5,744	5,107
AI120	Navigation Instruments	2,067	2,067	2,377	2,377
AN120	TACAN	6,547	6,406	7,531	7,386
AN130	Instrument Landing System	3,763	2,627	4,327	3,021
AN210	Radar Altimeter Set	8,888	7,302	10,222	8,397
AN220	Radar Beacon Set	6,628	6,628	7,622	7,622
AN320	Air Data Computer System	14,314	13,022	16,461	14,975
AN330	Inertial Measurement Set	57,670	53,837	71,784	61,913
	Subtotal	104,873	96,329	126,068	110,778
COMMUNICATIONS:					
AC110	HF Radio Set	47,308	36,795	60,723	42,314
AC210	VHF-FM Communications Set	10,488	9,823	12,061	11,296
AC310	Data Link	4,692	3,063	5,396	3,511
AC320	UHF Radio Set	7,182	5,449	8,259	6,266
AC410	Intercommunications Set	1,114	1,114	1,281	1,281
AC510	IFF Transponder Set	11,232	2,654	12,917	3,052
AC610	Speech Security System	8,761	8,207	10,075	9,438
	Subtotal	90,777	67,085	110,712	77,158
COUNTERMEASURES:					
AM110	Radar Homing & Warning Set	-	21,081	-	24,255
AM120	Infrared Tail Warning	55,082	55,082	63,344	63,344
AM130	Radar Homing & Warning ECM	17,373	-	19,979	-
AM140	Warning ECM	8,546	-	9,828	-
	Subtotal	81,001	76,173	93,151	87,599
AIR-GROUND-ATTACK:					
AA110	Forward Looking IR Detecting	90,000	90,000	103,500	103,500
AA120	Laser Target Identification	60,000	60,000	69,000	69,000
AA210	Weapons Control Circuits	10,700	-	12,305	-
AA220	Weapons Release System	43,898	-	50,483	-
AM210	Strike Camera System	5,920	5,920	6,808	6,808
AN310	Forward Looking Radar	105,777	65,125	121,644	74,895
AN340	Tactical Bombing Computer	107,821	-	123,984	-
	Subtotal	424,116	221,046	487,734	254,203
CONTROLS & DISPLAYS:					
AI110	Flight Instruments	7,338	7,338	8,439	8,439
AN110	Heading Mode System	13,400	300	15,410	345
AN350	Heads-Up Display	53,969	-	62,063	-
AN360	Projected Map Display	36,896	-	42,433	-
AZ110	Electronic Display	-	72,000	-	81,290
AZ120	Special Purpose Display	-	88,200	-	98,080
AZ130	Display Controls	-	121,000	-	134,310
AZ210	Multifunction Controls	-	25,940	-	28,531
AZ220	Dedicated Controls	-	14,360	-	16,503
	Subtotal	111,595	241,528	128,335	337,799
CORE:					
AZ140	Mass Memory Unit	-	38,800	-	44,278
AZ310	Processor	-	132,000	-	141,801
AZ410	Bus Control Interface Unit	-	68,000	-	89,700
AZ420	Remote Terminal Unit	-	120,000	-	121,000
	Subtotal	-	358,800	-	376,879
	Total	812,382	1,080,671	946,000	1,244,412

### 5.1.3 Support Investment Costs

The subcategory of support investment includes all costs associated with obtaining the logistics support requirements of a weapon system. These costs reflect the initial investment for necessary supplies and services to support the new weapon system. Support investment costs consist of eight cost elements aggregated by the following equation.

$COI = CPTI + CSPI + CDRI + CSEI + CSWI + CJGI + CIMI + CFAI$	
CPTI	Initial maintenance personnel training.
CSPI	Spares investment.
CDRI	Initial depot support equipment.
CSEI	Base level support equipment.
CSWI	Software acquisition.
CJGI	Initial maintenance manuals.
CIMI	Initial inventory management.
CFAI	New or additional facilities.

A review of Table 5.1 reveals some significant difference between several of the DAIS and non-DAIS cost elements. The difference in total support investment cost, however, is negligible. The individual differences will be discussed as each of these cost elements is presented.

#### 5.1.3.1 Cost of Initial Maintenance Training, CPTI

The initial maintenance personnel training cost element includes those costs incurred in setting up a training program. Contractor costs are the primary contributors in the following equation.

$CPTI = CGTE + CGCM + CCIT$	
CPTI	Cost of initial maintenance personnel training.
CGTE	Cost of training equipment.
CGCM	Cost of course material preparation.
CCIT	Cost of initial contractor provided training for depot and other personnel not included in those required for on and off equipment maintenance computed in the recurring cost of personnel training (CPT) element.

For this study, it was decided to account for the bulk of the training requirements by putting all the cost of training on- and off-equipment maintenance personnel within the recurring cost of personnel training (CPT) equation. The CPT equation thus accounts for the cost

of training the initial field maintenance personnel as well as training their replacements. This decision eliminates any possibility of double counting, since the cost per hour of training used as a multiplier in the CPT equation will include costs of course material preparation and training equipment replacement which would be applicable to either non-DAIS or DAIS. Therefore, a zero value was set for this NRC element for either configuration.

It should be noted that no comparative historical training cost data was readily available for this study. When considering the possibility of generating cost estimating relationships to obtain this cost element, it became apparent that training is a difficult cost to quantify for a system being introduced since it is influenced by many qualitative type variables such as training and maintenance policies, SE capability, personnel capability through former training, numbers of personnel to be trained as initial cadre, time span for training, and the cost of contracting for these services which in turn is a function of many variables including the qualifications of the writers. In spite of these difficulties, the cost of developing quality training must be determined.

This cost element should be addressed more comprehensively in future DAIS and non-DAIS cost comparisons. For this study, it was considered that the bulk of equipment is off-the-shelf and that with the commonality inherent in the DAIS concept, initial maintenance training costs should be minimal. DAIS training equipment should be largely available from previous procurements and applicable to this procurement. Air Training Command (ATC) personnel would be quite capable of preparing a suitable course and curricula with minimum contractor assistance. It is also assumed that contractor training, with the exception of peculiar equipment, would not be required for depot personnel since they would have already been qualified on this off-the-shelf equipment or the equipment would have been covered by the contractor maintenance and/or warranties.

#### 5.1.3.2 Cost of Spares Investment, CSPI

The support investment cost of spares element accounts for three types of spares: (a) LRUs and shop replaceable units (SRUs), (b) piece-parts and material, and (c) war reserve materials. The equation to compute CSPI is as follows.

$$\text{CSPI} = \text{NB} \cdot (\text{SUM}(\text{IXLRUSS}(\text{I}) + \text{LRUDS}(\text{I}) + \text{SRUSS}(\text{I}) + \text{SRUDS}(\text{I}) + \text{SPRTS}) + \text{WRMC})$$

CSPI	Cost of spares investment.
NB	Number of bases.
LRUSS	Cost of LRU(I) shop spares per base.
LRUDS	Cost of LRU(I) depot pipeline spares per base.
SRUSS	Cost of SRU shop spares per base belonging to LRU(I).
SRUDS	Cost of SRU depot pipeline spares per base belonging to LRU(I).
SPRTS	Cost of initial lay-in of spare piece-parts and material.
WRMC	War reserve material cost.

The cost of LRU and SRU spares is a summation over all LRU(I)s of the cost of the spares needed in the shop and to fill the depot pipeline. The cost of lay-in of spare piece-parts refers to the initial provisioning of any assemblies and spare components not included in the SRUs to be used for maintenance replacement purposes in end-items of equipment. It is estimated as a proportion of the expected LRU unit cost (UC(I)) at the time of initial provisioning. A proportion value of 0.05 was arbitrarily selected for both configurations. War reserve material cost covers any cost of establishing or increasing stocks of material amassed in peacetime to meet wartime stock requirements. In the present study, it was set to zero because there is no reason to expect a difference between the two comparisons.

The subequations for computing the remaining terms (and the values for their constants) were adapted from those used by the LSC model [1]\* for computing all LRU spares and have been extended to include SRU estimates for this study. The replacement spares terms from that model will be addressed in the nonrecurring spares cost element, CSP.

The average number of STKL(I) and STKS(I) needed as shop spares to satisfy the cost terms, LRUSS and SRUSS respectively, are computed by first assuming that the demand is a random variable with a Poisson distribution. Then, the equation requires that the number of spares in inventory be the minimum number necessary to ensure that, with the demand so distributed, the expected number of spares backordered (EBO) will be less than some user-specified quantity. The EBO chosen was 0.1 for both LRUs and SRUs. The equations used in the model to compute both stock levels, "STK<sub>\_\_</sub>," are provided in another available document [2]. The subequations required to compute the demand rates are addressed next. Once the stock levels have been determined, the

\*A number enclosed in square brackets indicates a reference listed at the end of this report.



following equation is used to compute the cost of LRU spares, where UC(I) is the expected unit cost of an LRU at the time of initial provisioning.

$$LRUSS = STKL(I) \cdot UC(I)$$

A similar equation is used to compute the cost of SRU spares (SRUSS), except that as insufficient data exists on SRU costs and failure rates, it has been assumed that each SRU in an LRU has the same cost and the same probability of failure. Thus, the following equation is derived.

$$\text{Cost of an SRU in a given LRU} = \frac{UC(I)}{NSRU(I)}$$

NSRU(I) Number of SRUs in LRU(I).

To obtain the stock levels, the model is programmed to consider the mean demand rate per base for LRUs or SRUs, LAM(I) or LAMS(I), that are required to support the peak level of aircraft activity. The peak base flying hours (PBFH) used to provide this contingency is 60 hours per month per aircraft. It also considers the pipeline times, T(I) and TS(I), per base for completing the repair of each LRU(I). The product, (LAM(I) • T(I)) or (LAMS(I) • TS(I)), represents the expected number of demands on supply for the Ith LRU or its SRUs, respectively over their average base repair pipeline times.

Values for LAM(I) and LAMS(I) are obtained from the following equations.

$$LAM(I) = \frac{(PBFH)(PS(I))}{MFHBMA(M)}$$

$$LAMS(I) = \frac{(PBFH)(PW(I))}{(MFHBMA(M))}$$

PS(I)	The probability of a shop action being taken on LRU(I) belonging to the sub-system (M).
MFHBMA(M)	The mean flight-hours between maintenance actions for subsystem (M) containing LRU(I).
PW(I)	Probability of repairing an LRU, given that it enters the shop.

This method of calculating the demand rate for SRU(I) assumes that each LRU(I) will require only one SRU spare to perform a repair action. Values needed to compute the pipeline times, T(I) and TS(I), required to complete the repair of each LRU/SRU and return them to the base serviceable stock are given by the following equations.

$T(I) = BRCT + \frac{PN(I)}{PS(I)} [OSTC(I-OS) + OSTO(OS) - BRCT]$	
$TS(I) = (KSLPT)(T(I))$	
BRCT	Base repair cycle time = 0.13 years (60 days).
PN(I)/PS(I)	Proportion of shop repairs actions on LRU(I) that will require Not Repairable This Station (NRTS) action, such that it will be returned to depot for repair.
OSTC	Average order and shipping time within CONUS = 0.36 months.
OS	Fraction of total force deployed to overseas location = 0.
OSTO	Average order and shipping time to overseas locations = 0.53 months.

KSLPT is the proportion of LRU repair time (T(I)) used as an estimate of the SRU repair pipeline time = 0.5. This is an arbitrarily chosen value based on an estimate that an SRU is simpler to ship and repair than an LRU whether on-site or returned to depot. This rationale considers the likelihood that, in some instances, LRUs going to depot will be cannibalized to obtain SRUs, thus shortening the time to only that required for replacement of an SRU.

The number of LRU (DPLL(I)) and SRU (DPLS(I)) spares required to fill the depot pipeline for each base are determined to compute the cost terms, LRUDS(I) and SRUDS(I) respectively. The DPLL term is computed for each LRU(I) as a function of its probability of being a not reparable this station (PN), depot repair cycle time (DRCT), and reliability (Mean Flight Hours Between Maintenance Actions) values for a specified peak base flying hours based on the following equation.

$DPLL(I) = (PBFH \cdot PN(I) \cdot DRCT(I))/MFHBMA(M)$
--

The SRU spares calculation requires basically the same equation except that the probability of a shop bench check and repair action (PW(I)) is used in place of the PN(I) term. In other words, it was assumed that only those LRUs repaired in the shop would result in an actual SRU return to the depot.

The results of these spares calculations by LRU ID code are contained in Report No. 8A of Sections I and II. A reduction of 14.4 percent in the total cost of spares is noted for the DAIS over the non-DAIS. This reduction is attributable to the decreased number of spares needed to support the DAIS configuration. This decrease results from the improvement in reliability brought about by some LRU functions (for example, controls and displays) being transferred to higher reliability DAIS core.

### 5.1.3.3 Cost of Depot Support Initial, CDRI

The CDRI element includes the initial investment cost of the equipment-peculiar and associated common SE and the overhaul manuals required to supply the depot overhaul/repair sites. The equation for CDRI is as follows.

$CDRI = (ND) \cdot (CDSE)$	
ND	Number of depots.
CDSE	Cost of support equipment/manuals per depot site.

The cost of initial support per depot site is obtained from the expression below.

$CDSE = \text{SUM}(D) (NDSE(D) \cdot UCDSE(D) \cdot (1+KSED))$	
NDSE	Number of depot support equipment (D) required (input).
UCDSE	Unit cost of depot support equipment (D) (input).
KSED	Proportion of depot SE unit cost used as estimate of initial sparing level for modules and parts plus overhaul maintenance manuals development and procurement.

DAIS was estimated to require one each of the LRU test stations, for a total of six. There is also one semi-automatic type of test station, such as ID code 6872C, suitable for use as SRU test stations. DAIS requires six of these SRU testers at the depot. The non-DAIS configuration was estimated to require sixteen (16) 6872C type testers to support 15 LRU type test stations. However, no LRU test stations were costed out for the non-DAIS since these were considered to be sunk costs.

Table 5.2 - Depot Support Equipment Data Inputs.

<u>Test Station ID</u>	<u>Non-DAIS</u>		<u>DAIS</u>	
<u>SRU SE</u>	<u>NDSE</u>	<u>UCDSE</u>	<u>NDSE</u>	<u>UCDSE</u>
<u>6872C</u>	<u>16</u>	<u>(\$000)</u>	<u>6</u>	<u>(\$000)</u>
		<u>1,600</u>		<u>1,600</u>
LRU SE				
ARFTS	N/A	-	1	1,370
CMPTS	N/A	-	1	3,559
CNITM	N/A	-	1	1,667
DTS	N/A	-	1	2,816
ICTM	N/A	-	1	1,080
MWTS	N/A	-	1	5,462
Other LRU	15	(sunk)	N/A	-
Test Stations				

An increase in cost of \$1.4M was noted for DAIS (\$22.2M) over non-DAIS (\$23.6M) for setting up one depot to support one deployed site. This increase is attributable to having treated the non-DAIS LRU cost stations as sunk costs. It is estimated that this quantity of depot SE could support up to three sites. This estimate is formulated on the basis of the shop SE loading factors were less than one for all test stations (see Report No. 9, Utilization Rate, in Section II). On the average, the depot test stations will be loaded to a third of the base because the base shop test station usage probability rate is greater than three times the probability of the depot repair rate.

#### 5.1.3.4 Cost of Support Equipment Initial, CSEI

This cost element provides for all initial investment base level SE costs. The cost of acquiring the common and peculiar SE and its associated software needed for operating, testing, and repairing assigned aircraft subsystems and maintaining its SE are included. All SE costs are avionics-specific. Both hardware and software costs are included. The cost of general SE not peculiar to the repair of avionics, such as power units, check-stands, and ground handling equipment, were excluded. This nonrecurring cost of base level SE investment is obtained from the following equation.

$$\text{CSEI} = \text{SUM}(\text{J})(\text{NB}) \cdot (\text{CPUSE}(\text{J}) + \text{CSESM}(\text{J}) + \text{IH}(\text{J})) \\ + \text{CSU}(\text{J}) + \text{NB} \cdot \text{OBSEC}$$

NB	Number of bases.
CPUSE	Cost per type of peculiar support equipment at each base.
CSESM	Cost of initial support equipment spare modules and spare parts for repair of shop support equipment at base level.
IH	Cost of interconnecting hardware to utilize existing automatic equipment (J) to test new subsystems or LRUs (\$0).
CSU	Cost of software to utilize existing automatic test equipment for the system (\$0).
OBSEC	Other base level support equipment costs.

The operational and maintenance costs of the SE at the base level will be covered in the recurring cost of SE equation (CSE) which uses this same equation as a nucleus. The procurement of all new SE was postulated for both non-DAIS and DAIS; therefore, the IH and CSU terms in this equation are zero.

The cost per type of peculiar support equipment (J) required per base is obtained from the following.

$$CPUSE(J) = (NSER(J) \cdot UCSE(J))$$

NSER	Number of peculiar support equipment at each base.
UCSE	Unit cost of peculiar support equipment (input).

The SE acquisition unit cost (UCSE) values are an aggregate of two cost components: (1) the basic unit cost of the test station, and (2) the test harness hardware and/or associated software costs to interface with the various LRUs tested. No attempt was made to estimate SE development costs for either configuration other than those embedded in this UCSE value. The basic unit cost values were obtained from the "National Stock Catalog" [3]. The LRU interface hardware and software costs were based on representative F-15 values obtained from the F-15 SPO. The UCSEs used as inputs for the shop test stations required for both the non-DAIS and the DAIS are given in Table 5.3.

The number of these shop test stations (J) required (NSER(J)) is obtained in the model from the following definition and equations. Let  $NSER(J)$  = the next highest integer value of  $A(J)$ , the utilization rate of the SE, and the value of  $A(J)$  is obtained from the following equation which computes the accumulated proportional requirements for SE item (J).

Table 5.3 - Shop Test Station Costs

ID Code	Equipment Name	UCSE (x1000)
	<b>CONVENTIONAL:</b>	
GM378	Mission & Traffic Control Test Station	506.9
HUDTS	Heads-Up Display Test Station	1,202.7
LS83A	Camera System Test Set	10.0
1803S	Control Air Data Computer Test Station	336.7
3439M	Electrical Test Set	295.2
6812M	Infrared Test Set	397.4
6850M	Communications & Nav. Aids Test Station	157.2
6863C	Navigation & Weapons Delivery Components Test Station	1,579.4
6868M	Radar Test Set	762.8
6872C	Radar Receiver-Transmitter-Modulator Test Station	1,259.5
6875C	Video Test Station	1,016.8
6876C	Indicators & Controls Test Station	488.9
6877C	Horizontal Situation Display Test Station	219.0
6891S	Homing-Warning System Test Station	698.4
6895S	Indicator-Servo System Test Station	316.7
	<b>Total</b>	<b>8,947.6</b>
	<b>DAIS:</b>	
ARFTS	RF Antenna Test Station	1,176.5
CMPTS	Computer Test Station	3,104.9
CNITM	Comm/Nav/ID Test Station	1,523.7
DTS	Displays Test Station	2,471.8
ICTM	Indicators & Controls Test Station	1,012.9
MWTS	Microwave Test Station	4,637.6
	<b>Total</b>	<b>13,927.4</b>
<p><b>Other SE Costs (OBSEC):</b></p> <p>Flightline SE Costs (FLA) = \$1,080,000 (conventional) \$ 518,300 (DAIS)</p> <p>Peculiar Base Shop SE (BPA) = \$388,000</p> <p>Common Base Shop SE (BCA) = \$78,000</p> <p><b>Recurring Costs:</b></p> <p>Annual Non-Personnel Cost (MSE) = 4% SE Unit Cost</p>		

$A(J) = ((PBFH)/AAOH) \cdot (TSD\text{EM}(J) + TSD\text{OT}(J))$	
PBFH	Peak base flying hours, on an annual basis (51,840 hours).
AAOH	Available annual operating hours (8,760 hours).
TSD\text{EM}	Test Station (J) demand time per flight-hour.
TSD\text{OT}	Test station (J) down time for repair per flight-hour.

The model computes the test station demand time per flight-hour of operation by summing across all LRUs tested by that SE (TSD\text{EM}) using the following equation.

$TSD\text{EM}(J) = \text{SUM}(I) (KTR(J) \cdot PW(I) \cdot TW(I) + PK(I) \cdot TK(I) + PN(I) \cdot TN(I))/MFHBMA(M)$	
PW(I)	Probability of shop bench check & repair of LRU(I).
PK(I)	Probability of shop cannot duplicate discrepancy (CND) of LRU(I).
PN(I)	Probability of LRU(I) entering shop being sent to the depot for repair.
TW(I)	Task time for shop bench check and repair of LRU(I).
TK(I)	Task time for shop cannot duplicate discrepancy (CND) of LRU(I).
TN(I)	Task time to determine if LRU(I) will be sent to the depot for repair.
MFHBMA	Mean flight-hours between maintenance actions for subsystem (M).
KTR(J)	Proportion of shop mean time to repair of the LRUs that requires the test station (J) to be used (0.7 for automatic and semi-automatic; 0.5 for manual).

The values used for the probability and average task time variables were developed as reported for the non-DAIS [4] and for the DAIS [5]. Similarly, the test station (J) down time for repair per flight-hour is obtained from the equation below.

$TSD\text{OT}(J) = \text{SUM}(I)(PTS(I,J) \cdot TTS(I,J) + PTD(I,J) \cdot TTD(I,J))/MFHBMA(M)$	
--	--

PTS	Probability of test station (J) requiring repair action.
PTD	Probability of test drawer requiring repair action.
TTS	Test station (J) repair time for LRU(I).
TTD	Test drawer repair time for LRU(I).
MFHBMA	Mean flight-hours between maintenance action per subsystem (M).

The values used for these variables in the model were developed as the result of an analysis reported in another document. Field data regarding test station failure, SE repair time, and LRU test and repair times were analyzed for the test stations that are presently used to repair the LRUs contained in both the non-DAIS and the DAIS architecture. In the case of the DAIS, F-15 test station data was consulted as the most similar to that projected for the mid-1980s SE. For the non-DAIS, the A-7D/F-111 test station data were used.

The value for the CSESM term was obtained for both non-DAIS and DAIS by estimating that the initial spares would cost 20 percent of their respective SE acquisition cost, CPUSE.

The term OBSEC in the basic equation accounts for all other base level SE costs computed from the expression below.

$$OBSEC = BPA + BCA + FLA$$

The values used for these terms were listed at the bottom of Table 5.3 and were obtained in the following manner.

The peculiar base shop SE (BPA) was considered to be the instruments and laboratory equipment necessary to test and repair the test stations. The procurement cost estimate was based on that spent for an F-15 allowance for supporting one shop. This SE was procured commercially and therefore would be considerably cheaper than purchasing MIL SPEC equipment. The same value of BPA was used for both the non-DAIS and the DAIS.

The additional items of common base shop SE (BCA) consist of general purpose test equipment. The total cost of BCA was estimated to be 20 percent of the BPA.

The peculiar flightline SE (FLA) was based on the recommended allowance to support the A-7D avionics systems. Items of SE not needed for the DAIS configuration, because of improved CITS, were evaluated. The unit costs were obtained from the contractor furnished equipment list for the A-7D. The cost factors used to compute the FLA costs are shown in Table 5.4.



Table 5.4 — Flightline support equipment (FLA) costs.

WUC	Equipment Name	AN/Nomenclature	Quantity		Unit Cost (x1000)	Acquisition Cost	
			Con- ven- tional	DAIS		Conventional (x1000)	DAIS (x1000)
DEH00	Angle-of-Attack Transducer Test Set	---	6	6	12.2	73.1	73.1
WUP00	Accelerometer Test Harness	AN/ASM-405	3	3	1.0	3.0	3.0
WZ700	ADC System Test Set	AN/ASM-371A	3	3	6.1	18.2	18.2
WYC00	Gyroscope Test Set	AN/ASM-337	3	3	4.4	13.3	13.3
WUX00	Air Data Computer Test Set	AN/ASM-388	3	3	13.1	39.2	39.2
WUW00	Air Data Simulator	ASM/SM-565	3	3	29.8	89.5	89.5
WV800	IMU Simulator Test Set	ASM/SM-639	3	—	3.1	9.3	—
WUA00	Armament Release System Test Set	AN/AWM-49	4	4	39.5	157.9	157.9
WZ900	Armament Station Control Test Set	AN/AWM-55	1	—	342.2	342.2	—
WUB00	Armament Wiring Test Set	AN/AWM-63A	3	—	20.8	62.5	—
WX500	Interference Blanker Test Set	AN/ASM-407	2	—	12.2	24.3	—
WX300	Environmental Control System Test Set	AN/ASM-390	3	3	4.5	13.4	13.4
WX600	Short Range Bore-sight Test Set	AN/APM-334	4	4	27.7	110.7	110.7
WUC00	Flight Radar Test Set	AN/APM-302	3	—	41.1	123.4	—
	TOTALS		44	32	557.7	1080.0	518.3

Report No. 9 of Sections I and II provides a compilation of all the SE costs including the utilization rate for each of the SE ID numbers for both these NRCs and the recurring costs that will be addressed in the CSE equipment equation.

The nonrecurring SE costs are \$17.7M for the DAIS as compared with \$15.1M for the non-DAIS. This \$2.6M difference is attributable to the high unit costs of the DAIS test stations.

#### 5.1.3.5 Cost of Software Acquisition, CSWI

The cost of software acquisition (CSWI) element is determined from cost estimating relationships (CERs) for determining the software development personnel costs (SWPC) and associated computer operation cost (COC). These CERs were developed as a result of a reported study [7]. Thus, the basic equation for CSWI is:

$$CSWI = SWPC + COC$$

The CERs for these terms are the equations below.

$$SWPC = NMM \cdot CPMM$$

NMM      Number of man-months required to develop software.

CPMM      Cost per man-month.

$$COC = NCHMM \cdot CCPH \cdot NMM$$

NCHMM      Number of computer hours per man-month.

CCPH      Computer cost per hour.

NMM      Number of man-months required to develop software.

The number of man-months required to develop the software, NMM, appears in both of the CERs and is obtained from the following expression.

$$NMM = NMMKW \cdot NW/1000$$

NMMKW      Number of man-months per 1000 computer words.

NW      Number of computer words.

The CPMM input of \$4,167/man-month and the CCPH input term of \$200/computer hour were estimated values used for both non-DAIS and DAIS. The variable input values are shown in Table 5.5.

Table 5.5 - Input Values for Cost of Software Acquisition.

<u>Variable</u>	<u>Non-DAIS</u>	<u>DAIS</u>
NW Total	59,400	117,800
• OFP	16,000	63,400
• OTP	-	10,000
• Support Software	43,400	44,400
NMMKW	15.0	2.706
NCHMM	9.0	10.5

This assumes that:

1. the DAIS Operational Flight Program (OFP) executive can be used without modification, and
2. a System Specification has been generated which defines in detail the requirements of the mission software.

Given the 1980s DAIS conceptual design [6] and the applications software structure defined for the current DAIS application, the size of the required OFP applications software was estimated and reported in [7]. With a 10,000 word Operational Test Program (OTP) as suggested by Trainor [7] and a conservative estimate of 15 percent, modification to the support software, the number of words in Table 5.5 for DAIS was obtained.

Techniques for estimating acquisition cost are usually based on estimates of software size, together with programmer productivity factors developed from past projects. Estimates of DAIS software size were derived from current DAIS implementation experience, and total approximately 63,000 16-bit words of object code. The size of the executive programs (master and local) and the math routines were not included since the application of DAIS to a specific configuration does not require further development of this software. About half of the total (32,000 words) is required to process and produce the displays (primarily the IMFK). This compares with the total size of about 16,000 16-bit words for a non-DAIS configuration.

The parameters describing the current non-DAIS configuration are taken from the A-7D/E navigation and weapon delivery software to obtain the 16,000-word size of the software package. This was chosen as being representative of current non-DAIS software in that it is coded in assembly language; it is monolithic as opposed to modular in that each function is performed by sections of coding occurring throughout the program making enhancement or modification difficult; a larger percentage (99.5 percent versus 63 percent) of memory is used; the configuration and mission are similar to that defined for the 1980s conceptual DAIS design; and, the software satisfies the same general set of requirements but has fewer specific functions due to a different architecture (partitioning).

Size alone is not the determining factor in acquisition cost, however. When preliminary cost data on DAIS software development is analyzed and compared with historical data, the results are startling with an average cost per word reported for DAIS of \$4.3 compared with costs of \$20 to \$80 reported in the literature, with real-time avionics software traditionally falling into the high end of this range.

Even when the DAIS costs are adjusted to include additional levels of design and test effort, the range of costs is still much lower, \$5 to \$25 per word. Although it was not possible to ascribe this improvement to a specific aspect of DAIS methodology, the combined impact of Higher Order Language (HOL) usage, DAIS support software, and the DAIS architecture standard is significant. Some perspective on this improvement can be gained by consideration of the effects of HOL use documented elsewhere. The average ratio of source-to-object for DAIS application programs is 4.7:1, which is close to the approximate 4:1 improvement in cost per word observed above.

The number of man-months required per 1000 words (productivity rate) for each configuration resulted from the reported analyses and algorithms. The number of computer hours required per man-month are based on estimates of eight hours per man of computer time required when writing support software and 12 hours per man when writing applications software. Weighting these values in terms of the type programming required resulted in the 9.0 and 10.5 hours per man-month hours of computer time needed for writing non-DAIS and DAIS programs, respectively.

The resultant software acquisition costs, CSWI, of \$1,998,000 for DAIS compared to the \$5,317,000 for non-DAIS is attributable to the breakdown of costs given in Table 5.6.

Table 5.6 - Software Acquisition Cost Estimates.

	Non-DAIS (\$000)	DAIS (\$000)
OFP	1,432	1,127
OTP	-	178
Support Software	3,885	693
TOTAL	5,317	1,998

The net effect of the changes in size and productivity is that the DAIS development cost is approximately \$1.305M compared to \$1.432M for the non-DAIS configuration. For the non-DAIS software, this range can be compared with costs at \$1.63M to develop the OFP for the F-15, a 21,000 (32 bit) word program, and \$4.44M for three additional versions of the F-15 OFP, all coded in assembly language.

A previous estimate of DAIS software cost was made by Trainor [7]. With an estimated OFP size of 29,000 words and an additional 10,000 words for OTP software, the total labor cost came to \$1.212M. The impact of HOL and support software was estimated to reduce costs by 22.4 percent, yielding a revised estimate to \$1.411M. This compared favorably with the estimate of \$1.305M for OFP and OTP software that went into the development cost given above, but the program size is about 50 percent smaller. An additional \$0.693M was included in DAIS software costs for modification of the support software to provide for new sensor and environment simulations.

Support costs for software in the F-111, F-14, F-15, and A-7D/E show a similar pattern. An initial investment of \$4.5 to \$10M establishes a facility for maintenance support (except for the F-14 where the development facility was used). Government personnel are used to staff the facility and perform verification and validation of changes which are implemented with contractor support. Recurring costs for these activities range from \$1M to \$2M per year as noted in the CSE cost element. One benefit of the DAIS program has been to develop government-owned support software which can become GFE for both development and support of future non-DAIS, as well as DAIS applications. Historically, support software was not purchased by the government as part of system development, but was a significant factor in the investment for a support facility. This approach was taken in estimating support costs for the conventional avionics software and a one-time cost of \$3.885M was included for support software development.

One final observation is that the DAIS software estimates assume that a totally new OFP is developed for each application. A potential DAIS benefit not recognized by this assumption is that the standardization of language and architecture might make possible reuse of portions of DAIS OFPs developed for other missions and other configurations. This concept, while feasible, remains to be tested by the current DAIS demonstration effort.

#### 5.1.3.6 Cost of Maintenance Manuals Initial, CJGI

This cost element represents those maintenance manuals required for organizational (flightline) and intermediate (shop) level maintenance of the avionics suite. Thus, the cost equation used for this equation is:

$CJGI = (1 + FJG) \cdot \text{SUM}(M)(CFJG(M) + CSJG(M))$	
CFJG	Cost of flightline manuals, maintenance portion, per subsystem (M).
CSJG	Cost of shop manuals, maintenance portion, per subsystem (M).
FJG	Proportion, as a function of the maintenance manuals or job guide type manuals, representing the general material found in that type manual (0.25).

The maintenance portions included both the troubleshooting requirements, which cover fault identification and malfunction isolation, and the non-troubleshooting requirements of a subsystem, which cover the remove and replace, repair and preventive maintenance type actions. The general material costs, represented by the fixed fractional adder, FJG, includes the costs of cover sheets, table of contents, indices, and safety requirements, as well as the costs of the operating manual.

The bottom line costs presented include the complete developmental array of costs such as the engineering research for the maintenance requirements, technical writing, typing, graphics designing, validation, verification, and the initial microfiche. For the 29 non-DAIS avionics subsystems, the initial cost of maintenance manuals totaled \$1,769,000. For the 32 DAIS avionics subsystems, the initial cost totaled \$2,095,000. Comparing individual common subsystem costs between the two avionics suites reveals that maintenance manuals for some non-DAIS subsystems are more expensive than those for the comparable DAIS subsystem, and vice versa. This is because the costs are proportional to subsystem complexity. While manuals for the DAIS are generally more expensive, given equal equipment complexity, many of the non-DAIS control and display LRUs have been removed to the core elements of the DAIS, thus reducing the complexity for those subsystems.

The 18 percent increase in maintenance manual costs for DAIS subsystems is primarily due to the assumption that current conventional maintenance manuals would be used in non-DAIS application whereas the newer job guide or proceduralized manuals would be used in DAIS applications. As determined in a recent industry survey, the cost of preparing and writing job guide manuals on a page by page basis is considerably greater than that for conventional maintenance manuals. This is due to the fact that much of the maintenance knowledge requirements that have in the past been taught in formal schools are written into the job guides, thus requiring increased engineering study and attention to detail.

#### 5.1.3.7 Cost of Inventory Management Initial, CIMI

The introduction of a new weapon system into the Air Force inventory initiates a sizable logistics management effort aimed at its initial and on-going operational support maintenance. A major portion of this effort is concerned with the stocking, control, and supply of spare parts. These spare parts also become part of the Air Force inventory. Their management plays a critical and costly role in determining the operational effectiveness of the system, although this cost element may not constitute a large dollar cost.

The cost of spares inventory management element is defined as an initial cost for inventory accession (nonrecurring) and an annual recurring cost which includes such things as storage, packaging, distribution, shipping, and record keeping. Also included are the cost of supplies and personnel salaries needed to perform these tasks. The

RC of inventory management will be included separately as the CIMI cost element. The equation for computing the NRC of inventory management is:

$\text{CIMI} = (\text{IMC}) \cdot \text{SUM}(\text{I})(\text{NNII}(\text{I}))$	
IMC	Initial management cost to introduce a new line item of supply (assembly or piece parts) into the Air Force inventory (input).
NNII	Number of new inventory items within each LRU(I).

The NNII term for each LRU(I) is obtained from the expression below.

$\text{NNII}(\text{I}) = 1 + \text{PA}(\text{I}) + \text{PP}(\text{I})$	
PA	Number of new P coded repairable assemblies within the LRU.
PP	Number of new P coded consumable items within the LRU.

This study relied heavily on the use of standard USAF cost factors which are based on historical data. The IMC term has a value of \$50.71/item based on a documented report [1]. Each configuration would have comparable costs since off-the-shelf items are postulated, and few new parts should enter the inventory. The PA and PP terms were assigned on the basis of the number of SRUs contained in the LRU rather than piece-parts. This was based on the premise that the piece-parts for either avionics configuration would be similar and in the inventory. Then, the PP term was set to zero, since the SRUs are not consumable items. Using this rationale, the CIMI values obtained were \$5,000 for non-DAIS, increasing to \$12,000 for DAIS.

#### 5.1.3.8 Cost of New or Additional Facilities, CFAI

The cost of new or additional facilities (CFAI) element provides for the construction, conversion, or expansion of any necessary facilities required to house or support the various services needed by a new weapon system. These services would include those required in the operation or support of the aircraft, its subsystems, and SE. The types of facilities included are: training, utilities, real estate, roads, and base maintenance shops. Also included should be any nonproduction industrial and test facilities and equipment required.

## 5.2 RECURRING COSTS

The category of RC reflects those costs generated during the operation and support phase of the weapon system life cycle. Specifically, this covers all ownership costs including operation, maintenance, and logistics support costs.

The RCs are computed on an annual basis (RCY) as the sum of the operation (CO) and support cost (CS) contributions. Then, the RC total is obtained from the following equation.

$RC = (PIUP) \cdot (RCY)$	
PIUP	Planned inventory usage period.
RCY	Recurring cost per year in constant year dollars.

### 5.2.1 Operation Costs, CO

The cost of operations subcategory consists of two principal cost elements: (a) operations personnel (including aircrew), and (b) fuel. These two cost elements are independent of the avionics architecture and have been set to zero in this study.

### 5.2.2 Support Costs, CS

The support costs subcategory includes the cost of the personnel, equipment, spares, material, and supply needed to support the deployed units. The type of support required by the weapon system includes organizational level maintenance personnel and equipment, as well as fully equipped and staffed intermediate and depot level maintenance facilities. The cost elements included in the recurring cost of supporting the weapon system operation are given in the equation below.

$CS = COM + CSM + CPT + CSP + CDR + CSE + CSW \\ + CJG + CIM$	
COM	Cost of on-equipment maintenance.
CSM	Cost of intermediate shop maintenance.
CPT	Cost of maintenance personnel training.
CSP	Cost of replacement spares.
CDR	Cost of depot maintenance.
CSE	Cost of maintaining support equipment.
CSW	Cost of supporting the software.
CJG	Cost of supporting maintenance manuals.
CIM	Cost of inventory management.



Figure 5.2 details the DAIS and non-DAIS recurring costs. The \$33,209,000 advantage of DAIS over the non-DAIS is substantial and represents a 27.3 percent savings over the PIUP of 15 years. This breakdown shows that there are elements that have considerable cost impact that are only partially offset by others. Specifically, the large reductions in cost for DAIS are contributed by the cost of on-equipment maintenance, intermediate maintenance, personnel training, replacement spares, depot maintenance, and software support which total \$35,483,000. This is only slightly offset by the increase in cost for SE of \$1,603,000 for the DAIS configuration. Each of the specific elements contained in the cost of support equation will be addressed further in this section. The cause for these cost differences will also be noted.

#### 5.2.2.1 Cost of On-Equipment Maintenance, COM

The COM element accounts for the cost of manpower and material needed to perform the flightline scheduled and unscheduled on-equipment maintenance of unit aircraft, such as organizational level maintenance. The basic equation for determining the annual cost of on-equipment maintenance is provided in Figure 5.2.

$COM = NB \cdot \sum(N)(MURF(N) \cdot (LLR(N) + BMR(N)))$	
NB	Number of bases.
MURF	Labor utilization rate, such as number of active maintenance manhours (MMH) by the Air Force Skill Category, AFSC(N), specific subsystems for flightline tasks.
LLR	Loaded labor rate for AFSC(N).
BMR	Base consumable material consumption cost rate per manhour for repairing LRUs by work center employing AFSC(N).

This same equation is used to compute the cost of intermediate shop maintenance element, CSM, by substituting shop maintenance personnel requirements (MURS) for the MURF term.

The BMR cost term includes minor items of supply (nuts, washers, rags, cleaning fluid, and so forth) which are consumed during repair of items. A BMR of \$2.83/manhour was used for both non-DAIS and DAIS based on a value obtained from an avionics field repair site. This is comparable to the \$2.28 hour for any type of repair [1].

The MURF term is the actual number of active maintenance manhours required for flightline maintenance obtained from the expression below.

Category	Subcategory	Element	Non-DAIS Cost (\$000)	DAIS Cost (\$000)	Cost Difference (\$000)	% Difference
RC-Recurring (for PIUP-15 years)						
CO-Operation						
		CFL-Fuel	0	0	0	0.0%
		COP-Personnel				
		CAC-Aircrew	0	0	0	0.0%
		COO-Other Operations	0	0	0	0.0%
CS-Support						
		COM-On-Equipment Maintenance	26,662	13,554	-13,128	-49.2%
		CSM-Intermediate Maintenance	22,856	14,419	-8,437	-36.4%
		CPT-Training	13,152	8,330	-4,822	-36.7%
		CSP-Spares	11,824	10,344	-1,480	-12.5%
		CDR-Depot Maintenance	33,767	27,799	-5,968	-17.7%
		CSE-Support Equipment	6,753	8,356	+1,603	+23.7%
		CSW-Software	4,209	2,562	-1,647	-39.1%
		CJG-Maintenance Manuals	1,990	2,357	+ 367	+18.4%
		CIM-Inventory Management	229	532	+ 303	+132.3%
Total RC			121,462	88,263	-33,209	-27.3%

Figure 5.2 -- Expanded recurring costs.

$MURF(N) = \text{SUM}(M) (ABFH \cdot FMMH(N,M))/EFF$	
ABFH	Annual base flying hours (25,920 hours).
FMMH	Flightline maintenance manhours per flight-hour for the AFSC(N) responsible for the maintenance of subsystem (M).
EFF	Percentage of maintenance manhours devoted to direct labor (0.6).

The annual base flying hour scenario of 25,920 hours is obtained from the equation:

$AFH = NACB \cdot FHACM \cdot 12$	
NACB	Number of aircraft per base (72).
FHACM	Average flight-hours per aircraft per month (30).
12	Number of months per year.

The FMMH term is the direct manhours required per flight-hour to perform all of the unscheduled flightline maintenance. This value, when divided by the percentage of maintenance manhours devoted to DL (EFF), provides the total active maintenance manhours per flight-hour for each AFSC. The EFF value of 0.6 used in the model is the direct-to-indirect labor utilization factor recommended [9] as the current Air Force, AFM 26-3, standard.

The FMMH values are obtained from the R&M portion of the RMCN computer program which computes manhours for each AFSC assigned to maintain each subsystem (M). This is accomplished by summing, across all required tasks, the product of the average time to accomplish that task and its probability of occurrence. These task values were obtained by a maintenance analysis of the DAIS and conventional avionics suites selected to satisfy the CAS mission. First, a maintenance analysis was conducted on conventional avionics equipment using a partitioning of the R&M characteristics, then an estimate of R&M characteristic values of DAIS in the mid-1980s was developed and reported [5]. Outputs from this historical (conventional avionics) and theoretical (mid-1980s DAIS) analysis are then input to the RMCN [2]. The RMCN determines the manpower resources consumed per flying hour in terms of manhours based on the elapsed time, skills and probability of task occurrence, and also the SE and spares for both flightline and shop maintenance.

No changes in the R&M parameters due to technical advancements or reliability growth were included in the DAIS estimates.

The only changes made in the DAIS flightline R&M parameters as a result of the analyses are attributable to the potential for employment of a central integrated test system (CITS) through the use of

DAIS architecture. Reductions from 10 to 30 percent in the "troubleshooting cannot duplicate discrepancy (CND) task" rates, determined as a function of the subsystems complexity, were postulated. It was also estimated that average troubleshooting task times could be reduced by at least half their present values. This was accomplished by reducing the number of technicians required for the troubleshooting task from two to one, rather than changing the task times. The number of technicians assigned to the troubleshooting CND tasks were not changed, however.

Some reassignment of AFSCs was needed to ensure that their training background was compatible with the equipment design. In particular, consideration was given to the possibility that maintenance technicians may be assigned solely to the flightline or shop. Therefore, only three avionics AFSCs from the 30000 series are needed to support DAIS on the flightline and five types of AFSCs for the shop. The five for the shop include two AFSCs for avionics test station repair, 326xA and 326xB. This policy is dependent to some degree upon the BIT/CITS capabilities at the flightline and the test station capabilities in the shop. Any other apparent changes in AFSCs are attributed to the physical and functional partitioning of the equipment brought about by the DAIS design.

The 421x3 and 431x1 AFSCs used in both configurations are those assigned to handle flightline SE when performing the unscheduled avionics maintenance. No scheduled maintenance estimates were provided for either configuration since it was considered negligible for avionics.

The direct maintenance manhours (MMH) per flight-hours (FMMH) and the total labor flightline (MURF) required to support a 72 aircraft wing are shown in Tables 5.7 and 5.8 for non-DAIS and DAIS configurations, respectively. The MMH values are listed with a N/A notation under the column LLR(N) when a particular AFSC is not needed for that configuration. The total labor column values in these tables are the addition of the flightline (MURF) and the total labor shop (MURS) columns when an AFSC performs both duties.

Having determined the MMH factors for each configuration, a loaded labor rate LLR(N) per AFSC(N) common to both configurations is used in the basic equation to be added to the BMR to determine cost of equipment maintenance. This direct labor rate (DLR) has direct, indirect, and overhead components as noted in the equation on page 121.

The DLR term includes a factor, KM(N), to reduce the cost per hour rate for DL of selected skill levels (N). This factor avoids double counting by not allowing the proportion of DL manhours devoted to OJT in the case of skill level 1 and 3 AFSCs, to be charged against the tasks. (Note that the cost of on-the-job training (COJT) term in the cost of maintenance personnel training element (CPT) equation has a value assigned for those AFSC(N)s whose KM(N) value is less than unity.)

Table 5.7 - NonDAIS Manhour Costs per Year by AFSCs

AFSC ID	Loaded Labor Rate (LLR(N))	Direct MMH/FH Flight Line (FMMH N,M)	Total Labor Flight Line (MMRF N,M)	Direct MMH/FH Shop (SMMH N,M)	Total Labor Shop (MMRS N,M)	Total Labor	Total Cost
32231	7.03	0.792	34,232	0.667	28,831	63,064	621,615
32251	11.52	0.876	37,836	0.749	32,343	70,180	1,007,215
32531	7.03	0.165	7,135	0.049	2,100	9,235	91,035
32551	11.52	0.165	7,135	0.062	2,685	9,821	140,956
3263A	7.03	0	0	0.087	3,740	3,740	36,967
3265A	11.52	0	0	0.087	3,740	3,740	53,678
3263B	7.03	0	0	0.127	5,466	5,466	53,884
3265B	11.52	0	0	0.127	5,466	5,466	78,457
32631	N/A						
63251	N/A						
32632	N/A						
32652	N/A						
32630	7.03	0.177	7,628	0.164	7,075	14,704	144,935
32650	11.52	0.201	8,696	0.170	7,344	16,040	230,210
32831	7.03	0.153	6,627	0.142	6,113	12,740	125,543
32851	11.52	0.164	7,104	0.145	6,214	13,319	191,159
32833	7.03	0.031	1,339	0.010	414	1,754	17,291
32853	11.52	0.031	1,339	0.017	714	2,053	29,475
32834	7.03	0.042	6,112	0.143	6,182	12,296	121,208
32854	11.52	0.162	6,990	0.143	6,184	13,175	189,088
40431	7.03	0.005	210	0.001	57	267	2,635
40451	11.52	0.005	210	0.002	66	276	3,965
42152	11.52	0	0	0.0003	12	12	181
42153	11.52	0.106	4,583	0	0	4,583	65,926
43151	11.52	0.044	1,903	0	0	1,903	27,316
43171		0.106	4,583	0	0	4,583	64,823
46230	7.03	0.092	88	0.002	91	179	1,769
46250	11.52	0.002	88	0.002	91	179	2,576
53151	11.52	0	0	0.001	46	46	663

Table 5.8 -- DAIS Manhour Costs per Year by AFSCs

AFSC ID Code	Loaded Labor Rate (LLR(N))	Direct MMH/FH Flight Line (FMMH N,M)	Total Labor Flight Line (NMURF N,M)	Direct MMH/FH Shop (SMMH N,M)	Total Labor Shop (NMURS N,M)	Total Labor	Total Cost
32231	7.03	0	0	0.285	12,315	12,315	121,390
32251	11.52	0	0	0.365	15,331	12,321	220,039
32531	N/A						
32551	N/A						
3263A	7.03	0	0	0.073	3,158	3,158	31,129
3265A	11.52	0	0	0.073	3,158	3,158	45,325
3263B	7.03	0	0	0.047	2,046	2,046	20,170
3265B	11.52	0	0	0.048	2,052	2,052	29,457
32631	7.03	0	0	0.200	8,520	8,520	84,974
32651	11.52	0	0	0.283	12,223	12,223	175,427
32632	7.03	0.690	29,788	0	0	29,788	293,616
32652	11.52	0.514	22,199	0	0	22,199	318,596
32830	7.09	0	0	0.208	8,992	8,992	88,640
32850	11.52	0	0	0.232	10,043	10,043	144,139
32831	7.03	0.166	7,160	0	0	7,160	70,576
32851	11.52	0.063	2,715	0	0	2,715	38,972
32833	7.03	0.125	5,410	0	0	5,410	53,329
32853	11.52	0.056	2,434	0	0	2,434	34,838
32834	N/A						
32854	N/A						
40431	7.03	0.005	201	0.0004	15	217	2,145
40451	11.52	0.005	201	0.001	29	230	3,314
42152	N/A						
42153	11.52	0.072	3,115	0	0	3,115	44,718
43151	N/A						
43171	11.28	0.072	3,115	0	0	3,115	43,970
46230	N/A						
46250	N/A						
53151	N/A						

The cost values for the military personnel service per hour (CMPS) terms obtained were those which specified AFM 177-101, effective 1 October 1976, as the source ([10] - Table 20). The cost components included in these standard rates are:

1. Average basic pay
2. Basic allowance for quarters
3. Miscellaneous benefits-expenses
  - Subsistence (cash and in kind)
  - Station allowance overseas
  - Uniform allowance
  - Family separation
  - Separation payments
  - FICA
  - Death gratuities
  - Servicemen's group life insurance
  - Reenlistment bonus
  - Apprehension of military deserters
  - Interest on savings deposits
4. Special entitlements
  - Flight pay (crewmember)
  - Flight pay (noncrewmember) and other hazardous duty pay
  - Foreign and sea duty pay
  - Special pay for medical, dental, and veterinary officers
  - Proficiency pay
  - Special pay duty subject to hostile fire
  - Diving duty pay

Exclusions are:

1. Permanent change of station travel costs
2. Support of free world forces
3. Amount of BOQ forfeitures due to occupancy of government quarters
4. Retirement pay liability

$LLR(N) = DLR(N) + ILR(N) + (OSCY/PMB)$	
DLR	Direct labor rate per manhour (per skill category and level).
ILR	Indirect labor rate per manhour (supervisors and administrative personnel).
OSCY	Overhead support cost per man per year.
PMB	Productive (available) manhours per man per year at base level (input (1920 hours)).

The DLR per manhour, DLR(N), is obtained from the following expression and is independent of the equipment being supported.

DLR(N) = KM(N) • (CMPS(N) + OPF (N))	
KM	Proportion of direct labor manhours devoted to tasks; that is, OJT:KM(N) = 1 for all AFSCs other than 1 or 3 level and KM(N) = 0.5 for all 1 or 3 level AFSC.
CMPS	Cost of military personnel services per hours.
OPF	Other personnel cost factors per manhour for skill category (N) not provided for in CMPS.

The OPF term accounts for three of these exclusions by adding the following costs.

1. A retirement benefit of 17 percent of CMPS, and
2. A 23 percent of CMPS to account for other personnel costs not included in the standard rates, each of these values as specified in Table B-1 of AFM 177-101.
3. A permanent change of station (PCS) travel allowance of \$0.32/manhour calculated on values obtained from another document [10] - Table B-9] whereby the following enlisted type of moves were used as an estimate for a four-year enlistment.

One PCS move	\$ 1168
General Training	371
From Basic Tech.	114
Operational Travel	<u>1175</u>
TOTAL	\$ 2848

In 1976 dollars, the total (\$2848) is \$674/year or \$0.32/manhour. When extracting values from these tables, a paygrade of E-3 was used for the skill levels 1 and 3 AFSCs, an average paygrade of an E-5 and E-6 was used for the skill level 5, and an E-7 paygrade was used for the 7 level skills.

The indirect labor rate (ILR) terms in the loaded labor rate equation (LLR) accounts for the supervisors and administrative personnel used to directly support the DL work force. The annual administrative and supervisory cost per man (SUPER) was derived from the A-7D Manpower Source List (MSL) data [11] shown in Table 5.9. The table indicates that, for 128 technicians, there are 49 administrative and supervisory personnel, each costing an average of \$13,292 per year. Assuming that this 49:128 ratio is constant for all systems, SUPER is computed to be an average value of \$5088 per technician. Then, ILR values per manhour of \$2.45 for skill level 5, \$2.01 for skill level 3, and \$0.0 for skill level 7 personnel were obtained as follows.



$$ILR = (SUPER) \cdot I(N) \div 2,080 \text{ manhours/year}$$

$$I(N) = \begin{cases} 1 & \text{if } n \text{ is a 3 level} \\ .82 & \text{if } n \text{ is a 5 level} \\ 0 & \text{otherwise (7 level)} \end{cases}$$

I(N) corrects for the fact that all level 3 personnel are technicians, but 18 percent of the five levels are supervisors themselves, based on a review of the manpower source listing (MSL) for the A-7D. The 2,080 manhours per year is based on the SUPER personnel paid for 52 weeks at eight hours a day.

Table 5.9 - A-7D Manpower Source Listing (MSL) Data.

<u>Administration:</u>	<u>Quantity</u>	<u>Rank</u>	Average wage and benefit = \$13,292/year
	2	LTC	
	2	MAJ	
	1	CPT	
	1	CMS	
	1	SMS	
	2	MSG	
	4	TSG	
	5	SSG	
	3	AIC	
	<u>21</u>		
<u>Supervisory:</u>	<u>Quantity</u>	<u>Rank</u>	
	1	CPT	
	1	LT	
	7	MSG	
	12	TSG	
	7	SSG	
	<u>28</u>		
<u>Technicians:</u>	<u>Quantity</u>	<u>Rank</u>	
	39	SSG	
	31	SGT	
	58	AIC	
	<u>128</u>		

The annual overhead support cost rate per man provides for such factors as medical support (\$229), base operation support (\$1248), vehicular and base maintenance (\$301), and hospitalization (\$683. These factors are embodied in the term, OSCY, which is an annual cost per man [10] - Volume II] and must be divided by the productive (available)

manhours per man per year (PMB) to get a manhour cost rate. The PMB used is based on the expression.

$$\text{PMB} = 48 \frac{\text{work-weeks}}{\text{man-year}} \cdot \frac{40 \text{ manhours}}{\text{work-week}} = 1920 \frac{\text{manhours}}{\text{man-year}}$$

The direct maintenance manhours and their costs required to support 72 aircraft on an annual basis were computed for each AFSC. Report No. 7 in Sections I and II provides the total labor and the total cost of that labor for each AFSC and skill level broken down by the subsystems they support. When the same AFSC is used for shop as well as flightline task events, each contribution of these events is included. The bottom line of each of these reports was extracted and included as Tables 5.7 and 5.8, as previously noted. Included in these total cost values are the contribution of BMR (\$2.83/hr) even though it is a consumable material rather than an actual manpower cost.

The resultant on-equipment maintenance LCC for a PIUP of 15 years is \$26,682,000 for the non-DAIS and \$13,554,000 for the DAIS configuration. This is an annual recurring cost of \$1,778,782 for the non-DAIS and \$903,597 for the DAIS as shown by subsystem contribution in Report No. 4 in Sections I and II.

This reduction in cost is attributable to the reduced manpower requirement in terms of MMH/FH for DAIS brought about by the sensor/core partitioning of R&M characteristics, coupled with its employment of CITS. No reliability improvement was provided for either configuration due to technological advances other than their inherent characteristics.

#### 5.2.2.2 Cost of Intermediate Shop Maintenance, CSM

The CSM element accounts for the cost of manpower and material needed to perform intermediate shop maintenance. The shop maintenance includes bench check and repair of LRUs removed from the aircraft, and also the repairs of the test stations used to test those LRUs. The basic equation for determining the annual cost of intermediate shop maintenance is:

$$\text{CSM} = \text{NB} \cdot \text{SUM}(\text{N})(\text{MURS}(\text{N}) \cdot (\text{LLR}(\text{N}) + \text{BMR}(\text{N})))$$

NB	Number of bases.
MURS	Labor utilization rate by skill category maintaining specific group of LRUs for shop tasks.
LLR	Loaded labor rate for skill level category (N).
BMR	Base consumable material consumption cost rate for repairing LRUs by work center employing AFSC(N) (\$2.83/hr).

The same BMR value of \$2.83/manhour to account for consumables, as noted in the COM equation, is used for both non-DAIS and DAIS.

The same basic equation formats and constants used for computing all of the factors contained in the on-equipment maintenance (COM) cost element are used for this cost element except the terms are redesignated when necessary (for example, the labor utilization rate is designated MURS(N)). The maintenance manhour value for MURS(N) is obtained by dividing the percentage of direct labor manhours (EFF) expected per person into the product of the number of flight-hours and the shop maintenance manhours expended by an AFSC(N) per flight-hour per LRU(I), SMMH(N,I). The values for SMMH(N,I) are obtained from the R&M portion of the RCMCM whose inputs are based on the same maintenance analysis discussed in the previous section. The shop direct maintenance manhours per flight-hour for the AFSC level (N) responsible for the maintenance of LRU(I) is determined in the RCMCM computer program by the following equation.

$$SMMH(N,I) = H(M) ((PW(I) \cdot TW(I) \cdot HW(I) + (PK(I) \cdot TK(I) \cdot HK(I)) + (PN(I) \cdot TN(I) \cdot HN(I) + (PTD(I) \cdot TTD(I) \cdot HTD(I)) + (PTS(I) \cdot TTS(I) \cdot HTS(I)))) / MFHBMA(M,I)$$

H(M)	The ratio between the number of LRUs tested in the shop and the flightline removal actions for subsystems (M).
PW	Probability of shop bench check and repair of LRU(I).
PK	Probability of shop CND condition for LRU(I).
PN	Probability of LRU(I) that the depot for repair.
PTD	Probability of a test station test drawer (J) used to test LRU(I) requiring repair action.
PTS	Probability of test station (J) used to test LRU(I) requiring repair action.
TW	Task time for shop bench check and repair of LRU(I).
TK	Task time for shop retest OK (CND) of LRU(I).
TN	Task time to determine if LRU(I) will be sent to the depot for repair (NRTS).
TTD	Test drawer repair time for LRU(I).
TTS	Test station (J) repair time for LRU(I).
HW	Number of technicians required to perform bench check and repair of the Ith LRU of a given subsystem.
HK	Number of technicians required to determine that a shop CND condition exists with respect to the Ith LRU of a given subsystem.
HN	Number of technicians required to determine that a NRTS action exists with respect to the Ith LRU of a given subsystem.
NTD	Number of technicians required to perform repair actions on the test drawer.

HTS	Number of technicians required to perform repair actions on the test station (J).
MFHBMA	Mean flight-hours between maintenance actions for subsystem (M) containing LRU(I).

The only changes made in the shop R&M parameters as a result of the maintenance analyses for DAIS are attributable to the use of CITS and consolidated SE. The DAIS shop CND rates were reduced anywhere from 10 to 30 percent by changing their probability of occurrence. Also, the sum of the shop probabilities of LRU repair were made equal to the flightline removal actions for that subsystem. These two changes are the direct result of the CITS capability coupled with any learning effect that will lessen the likelihood of multiple LRU removals on the flightline resulting in good LRUs reaching the shop. In either case, the effect would be brought about by the DAIS architecture.

In the case of the consolidated SE, no appreciable change in the shop test time was postulated; however, the number of technicians assigned to perform the shop test functions that culminate in a CND or a NRTS task action were limited to one. No change was made in the number of people (2) assigned to the LRU bench test and repair tasks, however, to allow for testing while repairing an LRU as well as for OJT.

The cost rates per AFSC and skill level (N) are the same as those used in the COM equations. The LLRs as well as the shop maintenance manhours are included in Tables 5.7 and 5.8, as previously noted.

The resultant intermediate maintenance LCC for a PIUP of 15 years is \$22,856,000 for the non-DAIS and \$14,419,000 for the DAIS configuration. This is an annual RC of \$1,523,727 for the non-DAIS and \$961,265 for the DAIS as shown by subsystem contribution in Report No. 4 in Sections I and II.

This reduction in cost is attributable to the reduced manpower requirement for DAIS (for example, MMH/1000FH) because of the sensor/core partitioning of R&M characteristics coupled with its employment of CITS and consolidated SE. No reliability improvement was provided for either configuration due to technological advances other than that caused by the reductions in CNDs for the DAIS resulting from the CITS potential.

#### 5.2.2.3 Cost of Maintenance Personnel Training, CPT

The CPT element accounts for the cost of training the initial work force of organizational and intermediate level maintenance personnel, as well as the annual cost of training their replacements. The initial training is considered to have been received prior to the first year, therefore, attrition of personnel during the first year has been considered.

The equation for computing this cost of maintenance personnel training is:

$CPT = NB \cdot \sum(N)(1/PIUP + TRS(N)) \cdot MU(N) \cdot TCS(N)$	
NB	Number of bases.
TRS	Annual turnover rate of airman in each skill category and level.
MU	Manpower utilization by AFSC(N).
TCS	Cost of training an airman for each skill category and level.
PIUP	Planned inventory usage period (15 years).

This basic equation computes CPT on an annual basis by first multiplying the number of AFSCs required per base  $MU(N)$  by the term  $(1/PIUP + TRS(N))$  and then by the cost of training by each skill category and level  $TCS(N)$  before summing overall AFSCs (N) and, finally, multiplying by the number of bases (NB). The term  $1/PIUP$  amortizes the training cost of the initial manning level over the life of the system (PIUP).

The term  $TRS(N)$  is the loss rate per year for each AFSC personnel category (N). The values for this term were obtained from extracts of a Personnel Availability Model (PAM) developed for AFHRL that used the Uniform Airmen Records (UAR) for years 1975 and 1976 as a base [12]. The same TRS values were assigned to the appropriate AFSCs for each configuration.

Manpower utilization,  $MU(N)$ , in the basic equation is the average number of AFSCs of skill category and level (N) required at each base computed as follows.

$MU(N) = (MURF(N) + MURS(N))/PMB$	
MURF	Labor utilization rate by skill category (N) maintaining specific subsystems for flightline tasks.
MURS	Labor utilization rate by skill category maintaining specific group of LRUs for shop tasks.
PMB	Productive available manhours per man per year at base level (1920 hours).

The labor utilization rates are the total manhours expended by each AFSC(i) needed to maintain specific subsystems (M). These maintenance manhours required to perform the flightline and shop tasks. MURF and MURS, are obtained from the equations used to compute these same terms for the cost of on-equipment (COM) and cost of intermediate (shop) maintenance (CSM) elements, respectively.

The cost of training an airman for each skill category and level is obtained from the expression:

$TCS(N) = CTTS(N) + COJT(N)$	
CTTS	Cost of technical training school per man by AFSC to obtain 3-level skills.
COJT	Cost of on-the-job training per man by AFSC to obtain 5-level skills including nonproductive wages based on a factor of $(1-KM(N))$ .

The cost of technical training school (TTS) per man by AFSC to obtain 3-level is computed from the following equation.

$CTTS(N) = NWK(N) \cdot (ACG(N) + CIC(N)) + PTT(N) + COT(N) + CACQ$	
NWK	Course length in weeks.
ACG	Average cost per graduate (N) per week.
CIC	Capital investment cost prorated by AFSC(N) per week.
PTT	Pre-technical training school pay and allowance per man.
COT	Cost of type four and other training, not included in ACG, per man.
CACQ	Acquisition cost per man which includes recruiting, initial travel, initial clothing issue, and training at military training center.

Briefly, recapitulated, current TTS course lengths are used as a basis to assess the training of avionics technicians to the 3-level. To arrive at appropriate course lengths for the DAIS as well as the non-DAIS technicians, the tasks used to accomplish the on-equipment and shop maintenance functions were listed. Then the training times necessary to learn those tasks were extracted from the ATC training course charts. This made it possible to "build" a composite training program for personnel maintaining either configuration regardless of whether that AFSC is presently learning the subsystem. In certain cases for both configurations, an AFSC was assigned to maintain a subsystem not directly covered in an existent ATC technical training program. There are several possible reasons for this, including: (a) the AFSC traditionally received training on the subsystem through field training detachment (FTD) courses at the 3- or 5-skill level, (b) the AFSCs selected do not presently receive training on DAIS subsystems, or (c) only a generic class of equipment was taught rather than the specific subsystem. Where training times for these AFSCs could not be extracted or extrapolated from the ATC course charts, they were established through engineering judgement based on existent training curricula for comparable equipment.

Costs for technical training school were derived from data made available by ATC which are included as Table 5.10. These costs were converted to 1976 dollars by use of a deflation factor of 0.922 and used as the input variables to the CTTS equation for both non-DAIS and DAIS data banks. A value of \$3,512 for the acquisition cost per man (CACQ) was obtained from the same source.

#### 5.2.2.4 Cost of Replacement Spares, CSP

The cost of replacement spares (CSP) element is the annual cost of replacing condemned LRU and SRU spares in the shop and depot pipeline. The basic equation for CSP is thus the addition of the cost of LRU and SRU replacement spares terms, LRURS and SRURS respectively. These are the spares and modules that are normally repaired and returned to stock. However, the SRUs can also be "discard on failure" modules.

The value for the cost of LRU replacement spares, LRURS, term is obtained from the equation:

$LRURS = NB \cdot \sum(I)(ABFH \cdot UC(I) \cdot FCL(I) \cdot PN(I) / MFHBMA(M))$	
NB	Number of bases.
ABFH	Annual base flying hours.
UC	Expected unit cost of LRU(I).
FCL	Proportion of NRTSed LRU(I)s expected to result in condemnation at the base/depot level.
PN	Probability of LRU(I) entering shop being sent to the depot for repair.
MFHBMA	Mean flight-hours between maintenance actions for subsystem (M) to which LRU(I) belongs.

This equation first computes the average number of LRUs and/or SRUs that are NRTSed at each base by using the expression  $((ABFH) \cdot (PN's))/MFHBMA$ . This value is then multiplied by the estimated proportion of the LRUs that are expected to be condemned (FCL) to determine the average number of replacement spares required. The multiplication of the unit cost per LRU ( $UC_i$ ) summed across the LRUs completes the computation of the cost of base spares replacement. The PN and MFHBMA factors are each peculiar to the particular LRU. A value of 0.01 was used for the LRU condemnation terms, FCL, for both configurations.

The cost of SRU replacement spares value, SRURS, is obtained by the foregoing equation by: (a) substituting the probability of a shop bench-check and repair action (PW) of that LRU(I) for the PN term, (b) using an estimated condemnation rate for SRUs (FCS) in place of the FCL term, and (c) substituting the average cost of an SRU,

Table 5.10 - TTS Cost Factors.

AFSC	Course Length Hrs	Cost of Type 4 & Other Training (\$)	Capital Investment Cost (\$)	Pay & Allowances (PRE T.T.) (\$)	Average Cost per Graduate (\$)	Total  $\frac{78\$}{76\$} = 1.13$  (\$/hr)
322x1	1080	727	1,623	268	11,799	11.81
325x1	876	484	1,376	268	8,475	10.71
326x1A	1288	545	1,824	268	17,421	13.78
326x1B						
326x1	1064	NA	1,564	268	13,384	12.66
326x2	728	NA	1,231	268	9,134	12.93
328x0	1120	109	1,647	268	13,508	12.27
328x1	1200	364	1,711	268	13,175	11.44
328x3	1320	182	1,910	268	16,344	12.54
328x4	960	400	1,432	268	15,640	16.35
404x1	904	NA	1,546	268	14,250	15.73
423x5	600	206	994	268	7,013	12.44
431x1	616	654	1,130	268	7,017	13.03
462x0	520	515	903	268	3,198	8.31



UCSRU, for the UC(I) values. This latter value is based on the assumption that each SRU in an LRU has the same cost and the same probability of failure. This assumption is based on the fact that SRUs are designed to approximately the same modular size to perform specific functions and have the same likelihood of contributing a random failure. An estimated value of 0105 was used for the disposal rate (FCS) for both non-DAIS and DAIS SRUs.

Reports No. 8B, Sections I and II, for non-DAIS and DAIS, respectively, provide the resultant cost values obtained from these computations for both LRUs and SRUs. A 12.5 percent decrease in overall spares cost per year is noted in the DAIS over the non-DAIS as shown in the following listing which contains the bottom line values from these reports.

Term	Total \$		%
	non-DAIS	DAIS	
LRU Unit Costs UCLRU	817,859	781,471	-4.4
SRU Unit Costs UCSRU	128,565	178,558	+38.9
LRU Spares Cost LRURS	385,817	305,756	-20.8
SRU Spares Cost SRURS	402,450	383,812	-4.6
Total Cost per year	788,268	689,569	-12.5
Total Cost (15 years)	11,824,026	10,343,530	-12.5

This reduction is consistent with the 14.4 percent decrease in initial spares that was estimated and results from the improved reliability of DAIS core elements that replaced the non-DAIS LRUs performing the same functions.

#### 5.2.2.5 Cost of Depot Repair, CDR

The CDR element accounts for all recurring depot costs of repairing LRUs and SRUs by subsystem, including their shipping costs.

A discussion of the terms used in the following equation used to compute CDR will further define the cost factors included in this element.

$$CDR = NB \cdot \text{SUM}(I)(ABFH \cdot PN(I) \cdot (DC(I) + TC(I))) / MFHBMA(M) + NB \cdot NACB \cdot COS \cdot OHR$$

NB	Number of bases.
ABFH	Annual base flying hours.
PN	Probability of LRU(I) entering shop being sent to the depot for repair (R&M input).
DC	Average depot repair cost per LRU and its SRUS.
TC	Round trip transportation and packaging cost per item.
MFHBMA	Mean flight-hours between maintenance actions.
NACB	Number of aircraft per base.
COS	Cost of overhaul per system.
OHR	Overhaul rate - portion of systems overhauled per year from each base (reciprocal of years between system overhauls).

The last term computes the annual cost of overhaul of all systems deployed, or the contribution of the subsystems under study to that cost, as applicable. This term was set to zero for both configurations since overhaul costs are normally not associated with avionics.

The first term computes the number of LRUs that have been returned to the depot for repair per year, for the given annual base flying hours, based on their NRTS and MFHBMA rates. This number is multiplied by an average LRU repair cost (DC) and an LRU transportation cost (TC) to determine the cost of depot repairs. The average LRU repair cost multiplier (DC) must account for all manpower, material, and overhead cost factors sustained by a DoD centralized repair depot, Government or contractor operated. The transportation cost is computed as a function of each LRU's weight using standard packing and shipping cost factors.

The following equation is used to compute the round trip LRU transportation and packaging costs, TC(I).

$TC(I) = W(I) \cdot RPUW \cdot 2 \cdot (PSC(I-OS) + PSO \cdot OS)$	
W	Weight in pounds of item (I).
RPUW	Ratio of packed to unpacked weight.
PSC	Average packing and shipping cost to CONUS locations.
PSO	Average packing and shipping cost to overseas locations.
OS	Proportion of total force deployed to overseas locations.

Standard USAF cost factors [1] were used for these terms for both configurations, whereby:

$$\text{RPUW} = 1.35, \text{PSC} = 0.53, \text{and } \text{PSO} = 0.99$$

No overseas deployment was used, therefore OS was set to zero.

Actual depot level maintenance costs per LRU, DC(I), were obtained from the IROS KO-51 data system. These costs are standard unit repair costs from G072A/B and other depot level repair management systems. To estimate the repair costs for new subsystems not yet in the active inventory, depot costs of currently operating systems having similar characteristics and components were chosen. This method provides representative depot cost data earlier in the acquisition process. By using this common source, the data is consistent with the overall accuracy of that used for the known inventory.

The KO-51 data product includes depot materials, labor, and condemnation costs by work unit code (WUC) and weapon system. However, there are many depot level activities and requirements that are not related to a WUC; hence, these IROS costs may be lower than actual costs experienced during depot maintenance. No attempt has been made to predict the actual depot costs. The following depot cost elements were not included in the available depot cost data.

1. Support and test equipment replacement
2. Technical publications
3. Training and personnel replacement

The total recurring cost of depot maintenance for a 15-year usage period is estimated at \$27,799,000 for the DAIS, and \$33,767,000 for the non-DAIS subsystems. This 17.7 percent reduction is attributable to any improved reliability in the DAIS core element LRUs over the conventional LRUs they replace.

#### 5.2.2.6 Cost of Maintaining Support Equipment, CSE

This element provides for the annual recurring costs of the peculiar avionics shop SE maintenance, excluding manpower costs. The cost of manpower required to operate and maintain the SE is included in the Cost of Intermediate Shop Maintenance element (CSM). CSE allows for the cost of spare parts needed to maintain the SE, as well as the cost of replacement of the SE at the end of its useful life span.

The cost estimating equations used to compute the value of this element is based on a proportion (MSE) of the cost per type of SE (CPUSE) term used in the nonrecurring cost element CSEI. The entire equation for computing CSE including lower-level terms necessary to provide inputs are included in CSEI and will not be repeated here. A value of four percent per year of the CPUSE value was used for MSE to compute CSEI for both non-DAIS and DAIS.

It was postulated that the useful life span of the SE would be equal to the planned inventory usage period (PIUP) of the avionics equipment tested and therefore no new buy was provided for.

As noted in Report No. 9, the replacement cost per year of SE spares for the non-DAIS is \$450,174 and for the DAIS is \$557,096. The LCC for 15 years is \$6,752,616 for the non-DAIS and \$8,356,440 for the DAIS. This 23.8 percent increase is a direct result of the higher procurement cost for DAIS SE (CSEI).

#### 5.2.2.7 Cost of Software Support, CSW

The annual software support cost (CSW) element includes the labor cost and computer costs required to perform software maintenance. For this LCC estimate, maintenance activity is defined to include error correction, but no improvement or enhancement. The prime driver of maintenance activity then becomes the error rate for a software system. Information on error rates was not available for either the non-DAIS or DAIS configuration, so a direct estimate of costs was not possible. Instead, historical data on weapon systems currently in inventory was combined with observations from the literature to assess the potential magnitude of the maintenance effort. The basic equation derived for CSW is:

$CSW = PC + SCC$	
PC	Software labor cost for base year (t).
SCC	Computer cost.

The CERs for these terms are derived in the following equations.

$PC = (NSS)(SLR)$	
NSS	Average number of software support staff.
SLR	Software staff labor rate.

$SCC = (CUR)(CC)(NSS)(12)$	
CUR	Computer utilization rate in hours per man-month.
CC	Support computer cost per hour.
NSS	Average number of software support staff.
12	Number of months per man-year.

The support cost is computed by estimating the staff required to perform error correction. Over the first five years, it is assumed that a staff of five people is required for DAIS, and the staff drops

to three for the last 15 years of the life cycle. An average figure of 3.5 men per year is used to estimate recurring labor and computer costs as shown in Table 5.11.

Table 5.11 - Input Values for Annual Software Support Cost.

<u>Variable</u>	<u>Non-DAIS</u>	<u>DAIS</u>
Labor Force:		
Years 1-5	8	5
Years 6-20	5	3
Staff Average (NSS)	5.75	3.5
Computer Utilization Rate (hrs/mm):(CUR)	12	12
Staff Labor Rate (\$/year)	\$20,000	\$20,000

The initial five-person staff was established by assuming an annual program change rate of 3.5 percent and a maintenance productivity factor of 27.1 mm/1000 words (ten times the development factor). Therefore, the staff necessary to maintain the DAIS OFP of 63,416 words is obtained from the equation:

$$\begin{aligned} \text{Number of people} &= 63,416 \text{ words} \times 0.035 \left( \frac{\text{change}}{\text{year}} \right) \times 27.1 \frac{\text{man-months}}{1000 \text{ words}} \\ &\times \frac{1 \text{ year}}{12 \text{ months}} = 5 \end{aligned}$$

Five years was selected as a conservative estimate of the time for avionics software to mature. Daly [14] observed that the major maintenance effort for real-time commercial software systems takes place during the first four years after development is complete. The reduced support staffing at the end of five years reflects the decrease in software errors that should occur as errors are corrected.

For conventional avionics software support, the support staffing is estimated as follows. Over the first five years, eight people are required with a decrease to five people over the last 15 years. This gives an average staff size of 5.75. This initial staffing was estimated by assuming an annual program change rate of five percent and a maintenance productivity factor of 120 mm/1000 or eight times the development rate. This compares with a five percent change rate and 142 mm/1000 factor used to estimate F-16 support costs. Therefore, the staff necessary to maintain the non-DAIS software programs of 16,000 words is calculated as follows.

$$\begin{aligned} \text{Number of people} &= 16,000 \text{ words} \times 0.05 \left( \frac{\text{change}}{\text{year}} \right) \times \frac{120 \text{ man-months}}{1000 \text{ words}} \\ &\times \frac{1 \text{ year}}{12 \text{ months}} = 8 \end{aligned}$$

The same annual salary rate of \$20,000 per year was assumed for both non-DAIS and DAIS. This value assumes government personnel support and is based on an average grade level of GS-11 and is the average annual cost of a civilian employee doing RDT&E specified in another document ([10] - Table 23).

The resultant LCC for a planned inventory usage period of 15 years is \$4,209,000 for the non-DAIS and \$2,562,000 for the DAIS configuration. This is an annual recurring cost of \$280,600 for the non-DAIS and \$170,800 for the DAIS.

This reduction in LCC is attributable to the characteristics of DAIS software which should reduce maintenance costs significantly over those projected for the non-DAIS configuration. These reductions should result from both the quality of the software initially delivered (fewer design and coding errors) and in the cost of implementing a specific correction. An indication of the magnitude of this reduction can be obtained by comparing DAIS development parameters with those used in an estimate of F-16 software support requirements [15]. A basic programming (code and debug only) rate of 10.4 mm/1000 words is inflated to account for other support activities and overheads to arrive at a rate of 142.4 mm/1000. While this productivity factor, together with a code change rate of about five percent, accounts for annual costs in the range (\$.5M to \$1.5M) reported for other avionics software, it represents 20 to 70 times the effort required for DAIS development (2.0 to 6.5 mm/1000).

#### 5.2.2.8 Cost of Maintenance Manuals Support, CJG

The cost element of maintenance manuals support consists of costs incurred for updating, improving, or correcting the manuals. Periodically, changes are made to subsystem units for any number of reasons which may require a concurrent change in schematics or maintenance procedures as presented in the manuals. Occasionally, some procedures are found to be unnecessary or misleading, additional procedures or explanations are required, and typographical errors are found, all of which eventually are incorporated into the manuals. The equation used for determining this cost is:

$$CJG = (KPJG)(KCJG)(CJGI)$$

KPJG	Fractional estimate of the portion of the manuals that will be corrected and/or changed each year.
KCJG	Fractional estimate of the reduced cost necessary to rewrite the corrections as compared to the initial writing costs.
CJGI	Initial cost of maintenance manuals.

A recent survey indicated that about 15 percent of the pages in an avionics manual require some changing each year. This is true of both conventional technical orders, as used for the non-DAIS subsystems, and of job guides which are proposed for the DAIS subsystems. Similarly, it was determined that the cost per page of writing a change is approximately one half that of writing the original. This cost varied with the reason that necessitated the change and with the consideration that some changes are initially handwritten by the manual user. Again, this factor is about the same for both conventional and job guide manuals.

The total RC of a 15-year usage period of supporting maintenance manuals for the non-DAIS avionics subsystem is estimated at \$1,990,000, and for the DAIS subsystems at \$2,357,000. The reason that the DAIS cost is 18 percent higher is that the initial job guide manual procurement cost is higher by 18 percent.

#### 5.2.2.9 Cost of Inventory Management, CIM

The CIM element is the recurring annual cost of managing the Air Force inventory of spare parts to support a system. When these spares have become a part of the Air Force-wide supply system (see CIMI element), they add to the cost of maintaining the supply system. The costs incurred include receiving, unpacking, storage, inspection, distribution, packaging, and crating. The material and personnel salaries needed to fill requisitions and maintain the inventory are also accounted for in CIM. The equation used to compute the CIM builds on that used for the CIMI and is as follows.

$$\text{CIM} = \text{RMC} \cdot \text{SUM}(\text{I}) (\text{NNII}(\text{I})) + \text{NB} \cdot \text{SA} \cdot \text{SUM}(\text{I}) (\text{BLII}(\text{I}))$$

RMC	Annual management cost to maintain a line item of supply (assembly or piece-part) in the wholesale inventory system.
NNII	Number of new inventory items within each LRU(I).
NB	Number of bases.
SA	Annual base supply line item inventory management cost.
BLII	Number of base level inventory items per LRU(I).

The NNII(I) term is the same as for the CIMI equation, but the BLII(I) term is obtained from the following expression by adding the value SP to the NNII term.

$BLII(I) = I + PA(I) + PP(I) + SP(I)$	
PA	Number of new P coded repairable assemblies within the LRU.
PP	Number of new P coded consumable items within the LRU.
SP	Number of standard (already stocked NSN) parts within the LRU which will be managed for the first time at bases where this system is deployed.

Standard USAF cost factors of \$129.16/item for RMC and \$25.04/item for SA were used in these equations for both configurations [10]. The values for PA and PP were the same as for CIMI equation whereby off-the-shelf inventories were assumed except for the new DAIS SURs. No new base additions to standard stock parts (SP) was anticipated.

The LCC of inventory management, as shown in Figure 5.2, increases to \$532,000 for the DAIS from \$229,000 for the non-DAIS configuration. This increase is caused by the new repairable assemblies introduced into the inventory by the DAIS.

### 5.3 COST OF SYSTEM DISPOSAL, CDP

The category of cost of system disposal covers the expenses incurred, as well as any income derived from the termination of a weapon system at the end of its economic life. For example, these costs would include salvage value and such costs as "moth ball" storage. This cost category has been set to zero for purposes of the DAIS impact analysis since either configuration would have equal (negligible) cost values.



## VI. RELIABILITY AND MAINTAINABILITY PARAMETERS

Reliability of equipment enters into a number of the cost element equations. The equipment reliability has been expressed as mean flight-hours between maintenance actions (MFHBMA) computed on a subsystem basis. The MFHBMA term is compatible with the field data used as input to the maintenance analysis conducted to obtain values for the terms that follow.

The MFHBMA values for a subsystem inherently include the failure and usage rates of its LRUs as shown in the following expression.

$MFHBMA(M) = \frac{MTBMA(I,M)}{GPA(I,M)} \cdot \left( \frac{OH}{FH(M)} \right) (M)$	
$MTBMA(I,M)$  $\frac{OH}{FH(M)}$  $GPA(I,M)$	<p>Mean time (operating hours) between maintenance actions for LRU(I) contained in subsystem (M).</p> <p>Equipment utilization ratio in operating hours per flight-hour.</p> <p>Quantity per application; such as, number of like LRU(I)s contained in subsystem (M). (Note that in cases where the subsystem contains different types of LRUs, the equation to be used would be:</p> $MTBMA(I,M) = \frac{1}{\frac{1}{MTBMA_1} + \frac{1}{MTBMA_2} + \dots + \frac{1}{MTBMA(I)}}$

A value of unity was used for the utilization rate for all equipment used in both configurations with the exception of the DAIS processors where a value of two was used. The rationale for this is that the processors will be operated on the ground whenever testing itself and the various subsystems, or when power is applied to any of the avionics subsystems. The other subsystems, however, will have power applied only when necessary for their own operation or maintenance.

It should be noted that the term  $MTBMA = \frac{OH}{MA}$  is directly related to the maintainability requirements of the subsystems, since:

$MA = \text{number of unscheduled maintenance actions recorded for the equipment} = \Sigma(\text{Repairs}_{\text{flightline}} + \text{Repairs}_{\text{shop}} + \text{CND}_{\text{FL}} + \text{CND}_{\text{shop}})$
--

Repairs <sub>shop</sub>	The bench test and repair or NRTS events required by any LRU removed from a subsystem for shop repair.
CND <sub>FL</sub>	Cannot duplicate the subsystems discrepancy on the flightline.
CND <sub>shop</sub>	Cannot duplicate the LRU discrepancy when tested in the shop.

The maintenance actions are broken down by actual maintenance events in the R&M portion of the RCM computer program. The probability of occurrence (PME) and the average time (TME) needed to complete those events per maintenance action were derived from field data of comparable equipment in the maintenance analysis used to obtain the R&M inputs. The product of PME and TME provides the mean time to complete (MTTR) each maintenance action. The aggregated values by subsystem for these terms are included in Report No. 6 of Sections I and II. The analysis which culminated in the values obtained for the reliability and maintainability parameters that are used in this study are reported in other available documents for the non-DAIS [4] and the DAIS [5].

## VII. CROSS REFERENCE LISTS

The following code, title, and definition lists are included in this section.

1. Non-DAIS support equipment ID codes/titles cross reference
2. DAIS support equipment ID codes/titles cross reference
3. AFSC ID codes/titles cross reference
4. AFSC skill level codes/definitions

### 7.1 NON-DAIS SUPPORT EQUIPMENT ID CODES CROSS REFERENCE

GM378	Mission & Traffic Control Test Station
HUDTS	Heads-Up Display System Test Set
LS83A	Camera System Test Set
1083S	Central Air Data Computer Test Station
3439M	Electrical Systems Test Station
6812M	Infrared Test Station
6850M	Communications & Navigational Aids Test Station
6863C	Navigation & Weapon Delivery Components Test Station
6868M	Radar Set Test Station
6872C	Radar Receiver-Transmitter-Modulator Test Station
6875C	Video Test Station
6876C	Indicators & Controls Test Station
6877C	Horizontal Situation Display Test Station
6891S	Homing-Warning System Test Station
6895S	Indicator-Servo System Test Station

### 7.2 DAIS SUPPORT EQUIPMENT ID CODES CROSS REFERENCE

ARFTS	RF Antenna Test Station
CMPTS	Computer Test Station
CNITM	Communication, Navigation, Identification Test Station
DTS	Displays Test Station
ICTM	Indicators & Controls Test Station
MWTS	Microwave Test Station

### 7.3 AFSC ID CODES CROSS REFERENCE

322x1	Weapon Control System Mechanic
325x1	Avionics Instrument Systems Specialist
326x1	Integrated Avionics Component Specialist
326x2	Integrated Avionic System Specialist
326xA	Avionics Support Equipment Specialist, Manual Test Stations
326xB	Avionics Support Equipment Specialist, Automatic Test Stations
328x0	Avionics Communications Specialist
328x1	Avionics Navigation System Specialist
328x3	Electronic Warfare Systems Specialist
328x4	Avionics Inertial & Radar Navigation System Specialist

404x1	Aerospace Photographic Systems Repairman
421x2	Aircraft Pneudraulic Repairman
421x3	Aerospace Ground Equipment Repairman
432x0	Aircraft Electrical Repairman
462x0	Weapons Mechanic
531x2	Metal Processing Specialist
431x1	Aircraft Maintenance Specialist

#### 7.4 AFSC SKILL LEVELS

##### AFSC

##### Code   Qualifications

- xxx3x   Apprentice - a technician who can perform routine tasks on his own but usually acts as an assistant. The individual has been to school to learn fundamentals and may have had some formal training on the subsystem being worked on.
  
- xxx5x   Specialist - a technician who knows the job through training and experience. The individual is capable of performing independent analyses and repair activities on subsystems and requires little to no supervision.
  
- xxx7x   Technician/Supervisor - a technician who is capable of performing all tasks involving specific complex subsystems and their interfaces. Individual will be very well qualified through training and experience.

## VIII. ACRONYMS

AFSC	Air Force specialty code
ATC	Air Training Command
BIT	built-in-test
BOQ	bachelor officer quarters
CAS	close-air-support
CER	cost estimating relationships
CITS	central integrated test system
CND	cannot duplicate discrepancy
DAIS	digital avionics information system
DoD	department of defense
FTD	field training detachment
GFE	government furnished equipment
HOL	higher order language
IROS	increased reliability of operational systems
LCC	life cycle cost
LCCIM	life cycle cost impact model
LRU	line replaceable unit
MMH/FH	maintenance manhours per flight-hour
MSL	manpower source listing
NRC	nonrecurring cost
NRTS	not repairable this station
NSN	national stock number
OFF	operational flight program
OTP	operational test program
PCS	permanent charge of station
RC	recurring cost
R&D	research and development
RDT&E	research, development, test and evaluation
R&M	reliability and maintainability
RMCM	reliability, maintainability, cost model
SAR	selected acquisition report
SE	support equipment
SPO	systems program office
SRU	shop replaceable unit
TTS	technical training school
WUC	work unit code

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